THE REPORT

OF THE

PRESIDENT

OF

QUEEN'S COLLEGE, BELFAST,

FOR THE

SESSION ENDING JUNE 11, 1864.

Presented to both Houses of Parliament by Command of Her Majesty.

DUBLIN:
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THE REPORT

OF THE

PRESIDENT OF QUEEN'S COLLEGE, BELFAST,

FOR

THE SESSION ENDING JUNE 11, 1864.

TO THE QUEEN'S MOST EXCELLENT MAJESTY.

MAY IT PLEASE YOUR MAJESTY,

The last Report of this College, which I had the honour of submitting to your Majesty, embraced its condition for the Collegiate Session 1862-63. That which I have now the honour of presenting includes the succeeding period, up till the close of the Session which has now terminated. In performing this annual duty, it affords me much satisfaction to state that the condition and progress of the College are highly encouraging. Taking into account the number of students on the rolls, their general attention to their varied and important studies, their remarkable successes in the numerous examinations through which they have passed for high honours and promotion, either in public competition or within these walls, I am justified in expressing great pleasure respecting results so favourable to the cause of united education, and so beneficial to the country at large. This College, by its position and prospects, is realizing the expectation of its founders, and extending the blessings of sound knowledge and enlightenment.

The first table I present records a steady annual increase of students in attendance, from the Session 1852–53, the number then having been 154, till March, 1863, when it had risen to 388. Notwithstanding the bad harvests of the three years previous to this—affecting collegiate attendance injuriously, as such failures always do—the numbers in the various departments during the Session now closed amounted to 386. In the year 1853 the matriculated students were only as two to one against the non-matriculated, whilst during the past Session the relative numbers were 341 matriculated and 45 non-matriculated.

I regard this feature of the advancement of the College, on the side of matriculation, as being highly gratifying in itself, and most conclusive regarding the beneficial influence and action of the Queen's University, which aggregates this and its sister Colleges of Cork and Galway.

At the period of the foundation of the Queen's Colleges, an idea existed that these institutions were merely intended to be centres for general popular lectureships, or feeders for the various Colleges and Universities of the empire. It is now clearly established that the right of graduation, secured to the students of the Queen's

Colleges, together with independent privileges similar to those enjoyed by the other Universities of the empire, has immensely stimulated education in Ireland, and has produced a class of men of high professional distinction, able to compete successfully in intellectual conflicts for the public service.

Tracing the history of the students of the Queen's Colleges, it appears that almost all who have distinguished themselves in public life had previously earned high rewards within the halls of the Queen's University.

The annexed Tables contain a statement of the numbers annually attending College, from the year 1852 up till the present date; and also of those who entered College last November, for the first time:—

RETURN of the Total Number of Students attending Queen's College, Belfast, since the year 1852.

Session.	Matriculated.	Non-Matriculated.	Total.	Session.	Matriculated.	Non-Matriculated.	Total.
1852–53,	101	53	154	1858–59,	160	63	223
1853–54,	114	54	168	1859–60,	199	58	257
1854–55,	118	65	183	1860–61,	239	73	312
1855–56,	119	74	193	1861–62,	299	77	376
1856–57,	136	58	194	1862–63,	335	53	388
1857–58,	153	54	207	1863–64,	341	45	386

NUMBER of new Students, or Freshmen, Matriculated and Non-Matriculated, who entered Queen's College, Belfast, for the first time, in the Session 1863–64.

Matriculated, . . .	108
Non-Matriculated, . .	17
Total. . . .	125

It affords me the highest satisfaction to record the prosperous condition of the Medical School; whilst I have to express my gratitude to your Majesty's Government for the additional provision which has obtained their sanction for a still further extension of the building devoted to that department. It is impossible to over-rate the importance of a thoroughly equipped Medical School, with all its necessary appliances; and I cannot avoid expressing my thankfulness to the Professors who preside over the anatomical and medical departments, for the wisdom, zeal, and ability they have manifested in overcoming some difficulties which had arisen, and in placing a school, on the proper conduct of which the issues of death and life so essentially depend, in a most efficient position.

RETURN of the Number of Medical Students in attendance in each Session.

Session.	Matriculated.	Non-Matriculated.	Total.	Session.	Matriculated.	Non-Matriculated.	Total.
1849–50,	28	27	55	1857–58,	35	32	67
1850–51,	20	35	55	1858–59,	45	34	79
1851–52,	25	39	64	1859–60,	56	39	95
1852–53,	29	33	62	1860–61,	70	46	116
1853–54,	29	37	66	1831–62,	81	48	129
1854–55,	39	36	75	1862–63,	89	33	122
1855–56,	33	48	81	1863–64,	110	33	143
1856–57,	36	25	61				

It thus appears that the numbers in attendance in the Medical Department have risen from 55 in the year 1850, to 143 in the present year.

The subjoined denominational Table presents nearly the same features of religious diversity as have annually existed, in proportion to the numbers in attendance, at Belfast College.

Denominational Return.

	Sessions.				
	1859–60.	1860–61.	1861–62.	1862–63.	1863–64.
Established Church, . .	43	57	59	61	62
General Assembly, . .	160	189	221	237	225
Non-Subscribing Presbyterians, .	15	14	29	13	17
Roman Catholics, . .	16	22	17	24	26
Wesleyan Methodists, . .	8	7	13	11	10
Covenanters, . . .	8	9	12	22	20
Seceders, . . .	1	4	4	3	–
Independents, . . .	2	–	4	3	3
Baptists, . . .	–	–	1	1	2
Various, ...	4	9	14	10	16
Religious Denomination withheld,	–	1	1	3	5
Total, . . .	257	312	375	388	386

During the past Session, a few cases of violation of discipline were brought under my notice and that of the Council. In some instances, only, was it necessary to inflict a small fine. Generally speaking, I have never observed amongst the students a more earnest desire to acquire knowledge, or to obey the laws of the College.

The establishment of competitive examinations in the different departments of the public service has produced a powerful influence in stimulating to industry and perseverance; and the intelligence which, from time to time, reaches the College regarding the successes of former students is at once a proof of the excellent instruction which they have received within its walls, and an encouragement to those who are purposing to follow in their footsteps.

It is almost unnecessary for me to repeat the testimony which it has been my privilege constantly to bear, in respect to the great ability and zeal manifested by the distinguished corps of Professors with whom it is my good-fortune to co-operate. Apart from their purely Professorial functions in their class-rooms, many of them have very onerous duties to discharge, in consequence of the multiplicity of public examinations required both by the Queen's University and the College. Nothing can be more gratifying than the spirit of unity and of energy which pervades the entire body; and to this must be attributed, in no small degree, the honour which former students, now engaged in the various departments of public life, confer upon the College and upon those who have so soundly instructed them.

Under the sanction of your Majesty, new charters were issued for the Queen's Colleges during the last year, and these have been in operation since they obtained the Royal seal.

It is my pleasing duty to state, that the changes introduced into the new code of laws operate most beneficially, both in respect to the government of the College, and the general interests of education.

I am still sorry to report, that there exists a pressing necessity for some alteration in the law regarding the duties of the Deans of Residences; and I cannot avoid expressing my opinion that these duties will not be sufficiently discharged till some provision shall be made, by Parliament or otherwise, for affording to those functionaries, who have undertaken them, some reasonable compensation for their important labours.

The decision of your Majesty's Government to augment the salaries of most of the Professors was an act of justice and expediency; and it is to be hoped that those whose incomes have not been increased, or have been augmented only to a small extent, may, ere long, find themselves placed in a better position. No doubt, the withdrawal of £600 a-year from the Parliamentary grant of £1,600, which has been voted for some time past for the extension of the library and the various museums, in order, by this subtraction, to augment the Professorial salaries, will interfere, to some extent, with the purchase of books and objects of illustration; but I trust that in a short time your Majesty's Government may think it right to raise the £1,000 a-year, still granted for these purposes, to the original sum.

I cannot but repeat here the language which I used in the year 1857, when returning thanks to the Government for extending to the College this grant of £1.600 a-year, in order to meet the requirements for the library and museums, and to abolish an oppressive fee charged yearly on matriculated students:—" On my own behalf, and on that of the College, I have to offer cordial thanks to the Government of the country, for extending to us the means of supporting and maintaining the libraries, museums, the philosophical and medical laboratories of this College. Without this, we should have been left destitute of every requisite instrumentality to cope with other Universities, or to meet the public demand on us to make proof of our efficiency. With this, the Professors have their supplies, the students their means of improvement, and the public its great reward; whilst for generations to come, the collections of special books and objects now judiciously selected will exist in the heart of this great province as permanent and valuable repositories of art, science, and literature."

During the last Session, the President and Council awarded the Sullivan and Wilson Scholarships in accordance with the schemes adopted for their allocation, keeping steadily in view the wishes of these generous benefactors. The arrangements that may be made from time to time, regarding these Scholarships, will be annually announced in the College Calendar, and by public advertisement. The establishment of the University Scholarships, sustained through the funds raised by Sir Robert Peel's noble and successful appeal to the country, in order to supplement the Exhibitions founded by the sum already placed on the Consolidated Fund for the purpose of endowing them, has produced a very marked and encouraging effect in increasing the number of graduates, as well as in stimulating competition. On looking back to former returns, I find that in October, 1860, 87 degrees and certificates of various kinds were conferred in St. Patrick's Hall by the Vice-Chancellor; whilst in October, 1863, there were conferred, in all, according to the subjoined Table, 245.

Degrees, Diplomas, Certificates, &c., conferred by the Queen's University in 1863.

2	ad eundem degrees of LL.D.	
26	ordinary degrees of M.D.	
13	" " M.A.	
47	" " B.A.	
4	" diplomas of C.E.	
	In all, including the two ad eundem degrees,	92
Also,		
73	candidates passed the first University examination in Arts.	
42	" " " " Medicine.	
20	" " " " Engineering.	
	In all,	135
Also,		
18	candidates obtained middle-class certificates,	18
	Total,	245

A large share of the honours and rewards, arising out of the examinations for these varied University distinctions, were borne away by the students of this College. It is, however, only just to say, in reference to many of the students of Cork and Galway, that by their successes they have made proof of their own intellectual power, whilst conferring high honour on the distinguished Professors of those two Colleges. I invite attention to the full Appendix, which I subjoin, affording, as it does, detailed statistics of all the principal educational matters connected with the management and proceedings of this College for the past year.

All of which is testified, on behalf of the College, by your Majesty's most dutiful servant.

P. SHULDHAM HENRY.

Queen's College, Belfast,
20th June, 1864.

APPENDIX.

APPENDIX, No. 1.

Appendix, *No.* 1.

Queen's College, Belfast, and Queen's University.

Queen's College, Belfast, and Queen's University.

The College is a Corporation under the name and style of "Queen's College, Belfast." It was founded under the provisions of the Act 8 & 9 Victoria, cap. 66, intituled "An Act to enable Her Majesty to endow new Colleges for the Advancement of Learning in Ireland." Under the powers given by this Act, it was determined to found three Colleges. Belfast, Cork, and Galway, were selected as the sites of these Colleges, and on the 30th day of December, 1845, letters patent were issued, incorporating them. The Presidents and Vice-Presidents of the three Colleges were formed into a Board, called "The Board of Queen's Colleges," for the purpose of drawing up the statutes and arranging the system of education to be pursued in them.

On the 4th of August, 1849, the Professors were appointed, and the Colleges opened for the reception of students on the 30th October, in the same year.

Letters patent, constituting the statutes, were issued on the 11th of December, 1849, and a further charter was issued last year.

The Council of the College.

The President.
The Vice-President.
P. Redfern, M.D., Professor of Anatomy.
J. Purser, M.A., Professor of Mathematics.
G. L. Craik, LL.D., Professor of History and English Literature.
C. MacDouall, LL.D., Professor of Greek.
Rev. J. M'Cosh, LL.D., Professor of Logic and Metaphysics.
Rev. C. P. Reichel, D.D., Professor of Latin.

Professors.

The Greek Language, . .	Charles MacDouall, LL.D., M.R.A.S.
The Latin Language, . .	Rev. Charles Parsons Reichel, D.D.
History and English Literature,	George Lillie Craik, LL.D.
Modern Languages, . .	Wilhelm Frädersdorff, LL.D.
The Celtic Languages, . .	[Vacant.]
Mathematics, . . .	John Purser, M.A.
Natural Philosophy, . .	John Stevelly, LL.D.
Chemistry, ...	Thomas Andrews, M.D., F.R.S., M.R.I.A.
Natural History, . . Mineralogy and Geology,	Wyville Thomson, LL.D., F.R.S.E., F.G.S., M.R.I.A.
Logic and Metaphysics, .	Rev. James M'Cosh, LL.D.
Civil Engineering, . .	James Thomson, C.E., A.M.
Agriculture, ...	John F. Hodges, M.D., F.C.S.
Anatomy and Physiology, .	Peter Redfern, M.D. Lond., F.R.C.S.
Practice of Medicine, . .	John Creery Ferguson, A.M., M.B.
Practice of Surgery, . .	Alexander Gordon, M.D.
Materia Medica, . . .	James Seaton Reid, M.D.
Midwifery, ...	William Burden, M.D.
English Law, . . .	Echlin Molyneux, A.M.
Jurisprudence and Political Economy, . . .	T. E. Cliffe Leslie, LL.B.

Office Bearers.

Curator of Museum, . .	The Professor of Mineralogy and Geology.
Registrar, ...	Rev. Richard Oulton, A.B.
Librarian, ...	Rev. George Hill.
Bursar, ...	Alexander Dickey, Esq.

B

Appendix, No. 1.

Queen's College, Belfast, and Queen's University.

DEANS OF RESIDENCES.

United Church of England and Ireland,	Rev. Henry Murphy, A.M.
General Assembly of the Presbyterian Church in Ireland,	Rev. Henry Cooke, D.D., LL.D.
Irish Association of Non-Subscribing Presbyterians,	Rev. John Porter.
Wesleyan Methodists,	Rev. Daniel Macafee.

The students of the College are either Matriculated or Non-matriculated. All the courses for Matriculated students in Arts, including the Department of Civil Engineering, and also in the Faculties of Medicine and of Law, will be found in the Calendar, which is published annually.

Non-matriculated students, on paying the regulated class fees, and signing an engagement to observe order and discipline in the College, are permitted, without undergoing a preliminary examination, to attend any separate course or courses of Lectures; but are not permitted to become candidates for Scholarships or Prizes, or to enjoy other privileges of the Matriculated students.

Students in any of the Faculties can be admitted *ad eundem* from the other Queen's Colleges, or from any University capable of granting degrees.

COLLEGIATE SCHOLARSHIPS.

In the FACULTY OF ARTS—30 Junior Scholarships, of £24 each, are awarded to Undergraduates—15 for proficiency in Literature, and 15 for proficiency in Science; also, 8 Senior Scholarships, of £40 each, to Graduates, one being limited to students who have also completed the course for the degree of LL.B.; and 5 Scholarships, of £20 each, to Engineering Students.

In the FACULTY OF MEDICINE—8 Junior Scholarships, of £25 each, are awarded.

In the FACULTY OF LAW—3 Junior Scholarships, of £20 each, are awarded.

SCHOLARSHIPS AWARDED IN THE SEVERAL FACULTIES, 1862–63.

9 Senior Scholarships awarded.
29 Junior Scholarships in Arts awarded.
2 Engineering Scholarships.
2 Agricultural Scholarships.
6 Medical Scholarships.
4 Law Scholarships.

Lapsed—1 Scholarship in Arts.
" 2 Agricultural Scholarships of Second Year.

1863–64.

7 Senior Scholarships awarded.
31 Junior Scholarships in Arts awarded.
5 Engineering Scholarships.
8 Medical Scholarships.
3 Law Scholarships.

By an order of Her Majesty in Council, of 21st May, 1855, applying to the Civil Service, it is ordained that "every person nominated to a junior situation should obtain a certificate of qualification before entering on his duties. The ordinary classes in Queen's College embrace the branches required in the Examinations for the Civil Service, and also in the Examination for students intending to become candidates for commissions in the Royal Artillery and Engineers, and for appointments to the Civil Service of India, both of which are now thrown open to public competition.

QUEEN'S UNIVERSITY IN IRELAND.

Appendix, No. 1.

Queen's College, Belfast, and Queen's University.

The charter founding the Queen's University in Ireland received the Royal sanction in the year 1850, and it provides that its Senate should have the power of conferring upon the students of the Queen's Colleges of Belfast, Cork, and Galway, such degrees and distinctions, in the Faculties of Arts, Law, and Physic, as are granted and conferred in other Colleges and Universities of Great Britain and Ireland. It further ordains that any of the students of the three Queen's Colleges, who shall have obtained such degrees in any of the several Faculties of Arts, Medicine, and Law, as shall be conferred by the Chancellor and Senate of the Queen's University, shall be fully possessed of all such rights, privileges, and immunities, as belong to similar degrees granted by other Universities or Colleges, and shall be entitled to whatever rank and precedence is derived from similar degrees granted by other Universities.

By the charter of the Queen's University, candidates for Degrees in Medicine are required to have attended *at least one-third of the courses of Medical Lectures* in some one of the Queen's Colleges. For the remainder of the courses of Medical Lectures, authenticated certificates will be received from the Professors or Lecturers in Universities, Colleges, or Schools, recognised by the Senate of the Queen's University in Ireland.

The Chancellor and Senate also have the power of admitting, by special grace, Graduates of other Universities to similar and equal degrees.

In order to obtain a degree or diploma in the Queen's University it is necessary to enter the College as a Matriculated Student, to pass the entrance or Matriculation Examination, and to pursue a fixed course of study.

The Matriculated Students may be classified as follow:—

I. Those intending to proceed to the Degrees of A.B. and A.M.
II. ,, ,, Degree of M.D.
III. ,, ,, Diploma of Elementary Law.
IV. ,, ,, Degrees of LL.B. and LL.D.
V. ,, ,, Diploma of Civil Engineering.
VI. ,, ,, Diploma of Agriculture.

THE SENATE.

Chancellor.—The Right Honorable George William Frederick Earl of Clarendon, K.G., G.C.B., &c.

Vice-Chancellor.—The Right Hon. Maziere Brady, Lord Chancellor of Ireland, M.R.I.A., &c.

The Right Honorable William Earl of Rosse, K.ST.P., M.R.I.A., &c.

The Right Honorable Thomas Spring, Baron Monteagle of Brandon, M.A., F.R.S., Member of Senate of University of London, Comptroller of the Exchequer.

The Right Honorable Francis Blackburue, Lord Justice in Appeal, LL.D., V.C.T.C.D., M.R.I.A.

The Right Honorable David R. Pigot, Lord Chief Baron of the Exchequer, M.R.I.A., &c.

The Rev. P. Shuldham Henry, D.D., President Queen's College, Belfast.

Sir Robert Kane, F.R.S., M.R.I.A., &c., President Queen's College, Cork.

Edward Berwick, Esq., President Queen's College, Galway.

Sir Richard Griffith, Bart., LL.D., M.R.I.A., Commissioner of Public Works.

Dominic J. Corrigan, M.D., M.R.I.A., Physician in Ordinary to the Queen in Ireland.

Major-General Sir Thomas Aiskew Larcom, R.E., K.C.B., LL.D., F.R.S., M.R.I.A., &c.

James Gibson, A.M., M.R.I.A., Barrister-at-Law.

Robert Andrews, Q.C., LL.D.

The Right Honorable James Henry Monahan, Lord Chief Justice of the Common Pleas.

Robert Adams, A.M., M.D.

The Right Honorable Sir Robert Peel, Bart., M.P.

Secretary.—G Johnstone Stoney, M.A.—Office, Dublin Castle.

The Senate holds its sitting in Dublin Castle, where the examinations of the students of the three Colleges, for Graduation and University Exhibitions, are annually conducted by Examiners appointed by the Senate from year to year.

Appendix, No. 2.

APPENDIX, No. 2.

Return of Students attending each Class.

RETURN of the NUMBER of STUDENTS attending each CLASS in the Queen's College, Belfast, in each Year.

CLASS.	SESSION.						
	1849-50	'50-51.	'51-52.	'52-53.	'53-54.	'54-55.	'55-56.
Greek—1st year,	71	47	28	16	21	26	29
,, 2nd ,,	–	27	18	7	11	12	14
,, Higher,	–	–	–	–	–	–	–
Latin—1st year,	63	45	27	19	21	24	27
,, 2nd ,,	–	27	17	6	11	11	13
,, Higher,	–	–	–	–	–	–	–
The English Language,	52	48	28	20	24	28	31
History and English Literature, Senior ,, ,,	–	–	25	15	20	16	20
Modern Languages (French, German, Italian),	62	36	41	27	34	37	29
Senior ,,	–	20	28	16	15	15	19
The Celtic Languages,	*The Lectures in each Session open to the Public.*						
Mathematics—1st year,	86	58	40	25	29	33	30
,, 2nd ,,	–	12	11	11	13	11	15
,, Higher,	–	–	–	–	–	–	–
Nat. Philosophy—Higher Class,	–	–	–	–	–	6	6
,, Mathematical Physics, &c.	32	32	46	24	29	23	24
,, Experimental Physics,	48	59	57	29	40	34	36
,, Practical Mechanics,	7	3	6	3	4	3	3
Chemistry,	37	53	63	44	51	60	50
Practical Chemistry,	6	7	14	10	15	14	12
Laboratory,	–	6	8	8	9	9	10
Zoology,	12	34	35	29	31	43	31
Botany,	12	49	46	35	37	46	36
Physical Geography,	–	–	29	17	21	19	20
Logic,	3	–	27	17	21	26	20
Metaphysics,	–	–	18	15	16	11	17
Higher Logic and Metaphysics,	–	–	6	7	7	8	6
Mineralogy and Geology,	*Public.*	6	14	13	15	13	9
Surveying,	10	9	9	6	8	9	4
Civil Engineering,	–	4	6	3	4	3	4
Theory of Agriculture,	11	8	7	2	6	5	5
Practice of Agriculture,	–	5	3	2	5	5	1
Diseases of Farm Animals,	–	5	3	2	5	5	1
Medical Jurisprudence,	2	8	14	10	13	8	10
Anatomy,	25	36	48	45	44	51	44
Practical Anatomy,	27	32	35	49	41	46	53
Practice of Medicine,	9	17	17	12	15	18	33
Practice of Surgery,	24	15	26	29	28	30	48
Materia Medica,	11	14	16	17	17	23	25
Midwifery,	14	10	12	16	17	18	24
Law of Property, Equity of Bankruptcy, Common and Criminal Law, Evidence and Pleading,	17	16	17	15	11	5	10
Jurisprudence and Political Economy, Arts,	–	–	12	2	9	6	8
Civil Law, Constitutional, Colonial, and International Law, Jurisprudence,	11	11	13	8	10	5	9
Arabic,	–	–	–	–	–	–	–
Hindustani,	–	–	–	–	–	–	–
Sanskrit,	–	–	–	–	–	–	–

Appendix, No. 2—*continued.*

Return of the Number of Students attending each Class in the Queen's College, Belfast, in each Year—*continued.*

Class.	Session.							
	'56–57.	'57–58.	'58–59.	'59–60.	'60–61.	'61–62.	'62–63.	'63–64.
Greek—1st year,	24	31	36	45	69	81	83	66
,, 2nd ,,	12	13	17	23	25	49	63	44
,, Higher,	–	–	5	4	4	7	7	9
Latin—1st year,	19	33	34	46	69	84	83	65
,, 2nd ,,	10	11	18	22	23	49	60	40
,, Higher,	–	–	2	3	2	6	6	8
The English Language,	24	36	41	49	72	85	85	70
History,	19	20	24	24	28	5	8	6
English Literature,						30	41	52
Modern Languages (French, German, Italian),	40	40	50	76	140	–	110	99
Senior ,,	12	16	13	17	10	54	–	26
The Celtic Languages,	The Lectures in each Session open to the Public.						–	–
Mathematics—1st year,	35	39	45	61	83	93	102	85
,, 2nd ,,	17	16	14	13	13	13	15	20
,, Higher,	–	–	4	6	3	–	5	6
Nat. Philosophy—Higher Class,	8	7	4	9	–	–	–	–
,, Mathematical Physics, &c.	19	26	26	24	64	67	72	69
,, Experimental Physics,	37	41	28	42	87	86	94	95
,, Practical Mechanics,	2	7	3	4	4	–	2	5
Chemistry,	70	60	74	81	64*	89	89	81
Practical Chemistry,	10	11	14	21	21	20	24	28
Laboratory,	15	10	11	10	12	15	15	8
Zoology,	43	34	63	56	37*	57	66	90
Botany,	44	34	62	55	40*	56	62	90
Physical Geography,	21	28	23	28	30	7†	7	–
Logic,	27	22	29	29	35	65	66	57
Metaphysics,	20	15	19	15	24	22	34	40
Higher Logic,	7	9	8	–	–	10	12	25
Mineralogy and Geology,	20	13	11	16	7‡	11	10	12
Engineering, 1st year,	15	7	7	12	9	10	11	15
Engineering, 2nd year,	2	7	3	4	4	6	11	8
Engineering, 3rd year,	–	–	–	–	–	–	3	7
Theory of Agriculture,	4	7	7	7	6	6	6	–
Practice of Agriculture,	1	3	1	4	3	1	–	–
Diseases of Farm Animals,	1	4	2	3	2	1	–	–
Medical Jurisprudence,	15	16	13	17	14	18	16	25
Anatomy,	39	39	59	60	86	83	83	87
Practical Anatomy,	33	41	44	62	80	85	91	97
Practice of Medicine,	27	19	22	29	25	42	27	36
Practice of Surgery,	32	30	29	39	51	53	53	46
Materia Medica,	11	18	22	27	33	38	37	29
Midwifery,	13	7	17	14	26	36	22	34
Law of Property, Equity of Bankruptcy, Common and Criminal Law, Evidence and Pleading,	14	12	13	16	16	14	12	12
Jurisprudence and Political Economy, Arts,	2	18	9	7	10	8	18	17
Civil Law, Constitutional, Colonial, and International Law, Jurisprudence,	10	10	11	17	10	12	11	10
Arabic,	–	–	–	1	–	–	–	–
Hindustani,	–	–	–	2	3	2	3	–
Sanskrit,	–	–	–	6	3	4	5	4
Operative Surgery,	–	–	–	–	–	–	11	2

* No Arts Students this Session, owing to change of Statutes.
† Not now required in third year Arts.
‡ No Engineering Students this Session, owing to change of Statutes.

APPENDIX,

RETURN of the AMOUNT of FEES received by each

Professor of	1849-50.			1850-51.			1851-52.			1852-53.			1853-54.			1854-55.			1855-56.		
	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
Greek,	*88	10	0	83	0	0	50	0	0	27	5	0	38	5	0	46	5	0	51	15	0
Latin,	*73	15	0	79	0	0	50	10	0	31	5	0	38	5	0	44	5	0	47	15	0
English History and Literature,	50	5	0	50	5	0	47	10	0	31	5	0	43	5	0	45	5	0	59	5	0
Logic & Metaphysics,	6	0	0	–			† 59	5	0	34	5	0	37	15	0	41	0	0	41	15	0
Mathematics,	116	15	0	97	10	0	69	15	0	43	0	0	54	10	0	59	0	0	60	10	0
Natural Philosophy,	79	5	0	70	15	0	99	10	0	47	0	0	73	15	0	76	15	0	59	10	0
Chemistry, Practical Chemistry	85	5	0	104	0	0	117	5	0	91	10	0	111	10	0	131	15	0	105	10	0
Anatomy and Physiology, Practical Anatomy,	143	0	0	170	0	0	195	15	0	230	10	0	228	0	0	250	0	0	256	0	0
Natural History and Botany,	20	10	0	69	0	0	70	15	0	50	15	0	55	0	0	76	15	0	59	10	0
Modern Languages,	97	0	0	84	0	0	63	0	0	50	0	0	61	0	0	85	0	0	74	0	0
Mineralogy and Geology,	–			7	10	0	24	15	0	17	15	0	20	15	0	18	0	0	12	10	0
Jurisprudence and Political Economy,	20	0	0	21	0	0	35	15	0	18	15	0	28	0	0	14	10	0	29	5	0
English Law,	32	0	0	29	0	0	37	0	0	23	0	0	20	0	0	16	0	0	21	0	0
Civil Engineering,	16	0	0	24	10	0	22	0	0	14	0	0	17	15	0	21	0	0	13	10	0
Agriculture and Medical Jurisprudence,	15	10	0	41	0	0	49	5	0	22	0	0	46	0	0	32	15	0	26	0	0
Practice of Medicine,	17	0	0	31	0	0	32	0	0	18	0	0	30	0	0	30	0	0	56	0	0
Surgery,	41	0	0	21	10	0	36	0	0	51	0	0	43	0	0	43	0	0	74	0	0
Materia Medica,	22	0	0	28	0	0	26	0	0	29	0	0	33	0	0	43	0	0	45	0	0
Midwifery,	28	0	0	18	0	0	22	0	0	27	0	0	31	0	0	33	0	0	44	0	0
Teacher of Drawing,	–			–			–			–			–			–			–		

* In the Session of 1849-50, Medical Students were required to attend the Greek and Latin Classes, but have since been exempt from attending either class.

† Professor M'Cosh was appointed in Session 1851-52, and taught and received fees from Students properly belonging to the previous Session.

Queen's College, Belfast, March, 1863.

Appendix, No. 4.

APPENDIX,

Expenditure of One Year's Additional Grant.

ACCOUNT of the EXPENDITURE of ONE YEAR'S ADDITIONAL GRANT

1. Library of Ancient and Modern Literature and Philology:

	£	s.	d.
Ancient Classical Languages and Philology,	46	3	9
English History and Literature,	17	12	5
Foreign Modern Languages,	11	19	11
Works of General Interest, &c.,	76	14	5
	152	10	6

2. Libraries, Museum, &c., Mathematical, Physical, and Chemical Sciences:

Mathematical Library,	14	3	5
Physical Library,	14	19	6
Chemical Library,	14	8	7
Museum and Cabinet of Physical Science,	34	16	0
" Laboratory, Chemical Science,	25	3	1
	103	8	7

No. 3.

Professor in the Queen's College, Belfast, in each Year.

1856-57.	1857-58.	1858-59.	1859-60.	1860-61.	1861-62.	1862-63.	1863-64.
£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
44 16 0	61 0 0	78 0 0	*93 6 0	*131 13 0	*186 0 0	*187 15 0	*221 0 0
39 15 0	53 0 0	67 0 0	†90 0 0	127 15 0	185 0 0	185 16 0	211 0 0
43 13 0	57 10 0	69 0 0	94 15 0	117 6 0	155 10 0	164 3 0	163 10 0
48 5 0	46 15 0	68 10 0	39 0 0	68 10 0	106 5 0	134 10 0	173 10 0
62 15 0	69 10 0	97 10 0	139 10 0	156 0 0	183 6 0	211 5 0	201 0 0
62 15 0	72 0 0	66 10 0	61 5 0	180 10 0	178 15 0	194 10 0	183 0 0
133 0 0	113 10 0	147 5 0	184 0 0	167 0 0	195 15 0	210 5 0	213 10 0
181 0 0	206 0 0	262 10 0	307 0 0	427 10 0	‡432 10 0	‡425 10 0	‡453 10 0
56 0 0	32 10 0	105 5 0	94 10 0	70 0 0	96 10 0	120 5 0	167 0 0
86 0 0	96 0 0	120 0 0	159 10 0	277 0 0	319 6 0	270 15 0	231 0 0
37 0 0	20 5 0	21 15 0	24 15 0	11 10 0	18 6 0	20 10 1[illegible]	22 0 0
22 10 0	31 15 0	20 10 0	36 10 0	28 10 0	25 16 0	37 10 0	38 0 0
27 0 0	21 0 0	25 0 0	28 0 0	28 0 0	25 0 0	21 0 0	18 0 0
27 0 0	22 0 0	22 15 0	24 16 0	32 0 0	40 15 0	70 0 0	82 0 0
25 10 0	40 6 0	31 5 0	47 0 0	43 0 0	§44 0 0	§36 15 0	48 0 0
43 10 0	26 0 0	37 0 0	44 0 0	37 0 0	64 10 0	48 0 0	59 0 0
42 10 0	34 0 0	46 0 0	65 10 0	79 13 0	84 12 0	96 11 0	73 0 0
20 0 0	34 0 0	39 0 0	60 0 0	60 0 0	69 0 0	70 0 0	59 0 0
24 0 0	12 0 0	28 0 0	25 0 0	48 0 0	63 0 0	36 0 0	66 0 0
32 0 0	25 0 0	26 0 0	22 0 0	–	–	–	–

* Besides for Sanskrit and Hindustani 1859-60, £35; 1860-61, £22 10s.; 1861-62, £25; 1862-63, £32 10s.; 1863-64, £20.

† Besides for Arabic in 1839-60, £6.

‡ The Professor of Anatomy pays to his Demonstrator a portion of the fees for Practical Anatomy.

§ No endowment for Medical Jurisprudence. Professor Hodges delivers the lectures, receiving only class fees.

ALEXANDER DICKEY, *Bursar*.

No. 4.

Appendix, No. 4.

Expenditure of One Year's Additional Grant.

to the Queen's College, Belfast, ending 31st March, 1863.

3. Libraries, Museum, and Collection of Objects of the Department of the Natural Sciences:

	£	s.	d.
Library of Natural History,	18	19	8
,, Geology and Mineralogy,	8	9	5
Museum of Natural History,	65	0	1
,, Geology and Mineralogy,	17	18	0
	110	7	2

4. Libraries, Museums, and Collections of Objects of the Departments of Engineering and Agriculture:

	£	s.	d.
Library of Engineering,	8	15	1
,, Agriculture,	19	15	2
Instruments and Collections of Engineering,	19	3	0
Collections of Agriculture,	5	6	0
	52	19	3

APPENDIX, No. 4—*continued.*

Expenditure of One Year's Additional Grant.

ACCOUNT of the EXPENDITURE of ONE YEAR'S ADDITIONAL GRANT to the Queen's College, Belfast, ending 31st March, 1863—*continued.*

	£	s.	d.
5. Museum and Library of Medical Science:			
Library of Medical Works,	29	19	3
Anatomical and Pathological Mnseums, and Rent of Anatomical Rooms,	81	8	0
Surgical Museum,	3	15	0
Midwifery,	0	11	0
Medical Jurisprudence,	5	17	7
	121	8	10
6. Library of Metaphysical, Legal, and Economical Science:			
Law, Jurisprudence, and Political Economy,	7	7	1
Metaphysics,	10	14	3
	18	1	4
7. Printing, Stationery, Advertising, Postages, Office Expenses, &c.,	340	1	11
8. Heating and Lighting,	145	9	0
9. Botanic Gardens, £25; Grounds, £70 16*s.* 8*d.*,	95	16	8
	1,140	3	1
Balance in Bank of Ireland Office, 31st March, 1863,	317	13	0
Total,	1,457	16	1
Amount of One Year's additional Grant,	1,000	0	0
College and Matriculation Fees,	126	15	0
Received for Calendars, Catalogues, &c., sold, and Fines,	13	19	8
Balance in Bank, 31st March, 1862,	317	1	5
Total,	1,457	16	1

The Accounts of the College up to 31st March, 1883, have been examined and found correct by the Commissioners for Auditing the Public Accounts.

February, 1864.

ALEXANDER DICKEY, *Bursar.*

APPENDIX, No. 5.

General Class Examinations, Queen's College, Belfast.

—	Session 1862-63.			A.M.	P.M.	Session 1863-64.			A.M.	P.M.
The English Language,	Saturday,	January	10	—	12—4	Saturday,	January	2	—	12—4
Logic,	Saturday,	February	14	9—12	—	Saturday,	February	13	9—12	—
Zoology,	Friday,	February	27	9—12	—	Saturday,	March	5	9—12	—
Metaphysics,	Tuesday,	March	31	9—12	and 2—5	Tuesday,	March	22	9—12	and 2—5
Physical Geography,	Wednesday,	April	1	9—12	—	Wednesday,	March	23	9—12	—
Mineralogy and Geology,	Wednesday,	April	1	—	2—5	Wednesday,	March	23	—	2—5
English Literature,	Thursday,	April	2	9—12	and 2—5	Thursday,	March	24	9—12	and 2—5
Midwifery,	Saturday,	April	27	9—12	—	Wednesday,	April	27	—	2—5
Practice of Medicine,	Saturday,	April	27	—	2—5	Wednesday,	April	27	9—12	—
Anatomy and Physiology,	Monday,	April	28	9—12	and 2—5	Thursday,	April	28	9—12	and 2—5
Practical Anatomy,	Wednesday,	April	29	9—12	—	Friday,	April	29	9—12	—
Practice of Surgery,	Wednesday,	April	29	—	—	Friday,	April	29	—	2—5
Materia Medica,	Thursday,	April	30	9—12	—	Saturday,	April	30	9—12	—
Medical Jurisprudence,	Thursday,	April	30	—	2—5	Saturday,	April	30	—	2—5
Practical Chemistry,	—	—		—	—	—	—		—	—
Modern Languages,	Wednesday,	June	3	9—12	and 2—5	Tuesday,	May	31	9—12	and 2—5
Greek (First Year),	Thursday,	June	4	9—12	,, 2—5	Wednesday,	June	1	9—12	,, 2—5
,, (Second Year),	Friday,	June	5	9—12	,, 2—5	Thursday,	June	2	9—12	,, 2—5
Latin (First Year),	Friday,	June	5	9—12	,, 2—5	Thursday,	June	2	9—12	,, 2—5
,, (Second Year),	Thursday,	June	4	9—12	,, 2—5	Wednesday,	June	1	9—12	,, 2—5
Engineering and Surveying,	Friday,	June	5	—	—	Thursday,	June	2	9—12	,, 2—5
Mathematics,	Saturday,	June	6	9—12	and 2—5	Friday,	June	3	9—12	,, 2—5
Natural Philosophy,	Monday,	June	8	9—12	,, 2—5	Saturday,	June	4	9—12	,, 2—5
Chemistry,	Tuesday,	June	9	9—12	,, 2—5	Monday,	June	6	9—12	,, 2—5
Botany,	Wednesday,	June	10	9—12	—	Tuesday,	June	7	9—12	—
Practice of Agriculture, Diseases of Farm Animals, Theory of Agriculture,	Wednesday,	June	10	9—12	—	—	—		—	—
History,	Wednesday,	June	10	9—12	—	Tuesday,	June	7	9—12	—

General Examination of Students in Law, and also of Students in the Faculty of Arts, in Jurisprudence and Political Economy, at the close of the Lectures on these subjects.

Appendix, No. 6.

Lectures delivered by Professors.

APPENDIX, No. 6.

Return of the Number of Lectures delivered by each Professor in the Queen's College, Belfast, in each Year.

—	1849-50.	'50-51.	'51-52.	'52-53	'53-54.	'54-55	'55-56.	'56-57.	'57-58.	'58-59.	'59-60.	60-61.	'61-62.	'62-63.	Remarks.
Professor of— Greek, . . .	135	232	244	246	236	240	234	236	236	350	500*	460*	440*	360*	In addition, examining some hundreds of exercises each session.
Latin, . . .	162	197	216	221	186	198	232	230	230	275	398	234	234	234	Do. do.
History and English Literature, . .	35	55	98	81	104	100	105	105	98	110	123	92	164	146	Besides 676 exercises.
Modern Languages, .	208	330	324	307	306	305	316	340	369	607	340	372	372	360	
Celtic, . . .	6	5	6	6	6	6	6	6	6	6	6	6	–	–	Open to the Public without charge
Mathematics, . .	135	256	333	246	246	330	346	322	330	400	400	370	370	616	Besides two hours each week on which the Senior Scholar meets the Junior Division.
Natural Philosophy, .	122	257	233	209	256	250	255	307	300	300	242	242	213	182	In addition, arranging apparatus, which occupies as much time as the lectures.
Chemistry, . . .	134	136	137	123	132	160	158	142	142	140	132	162	132	132	In addition, superintending the working pupils, of whom from eight to twelve are admitted each year by examination to the laboratory without charge.
Practical Chemistry, .	36	36	36	36	66	36	36	36	34	66	36	36	36	36	
Natural History, . .	120	120	133	137	136	138	142	140	143	140	140	140	140	140	Including lectures in Physical Geography, delivered free to all students.

Mineralogy and Geology,	*Public*	86	54	59	54	55	49	59	52	52	52	52	52	52	In addition, daily attendance as Curator in the Museum.
Logic and Metaphysics,	–	–	78	142	179	175	164	177	179	167	140	158	194	208	In addition, criticising above 600 essays in each session
Civil Engineering,	134	139	140	136	140	136	147	118	100	184	196	220	198	328	Including practical work under the direction of the Professor.
Agriculture,	172	206	205	912	209	213	218	166	190	166	166	156	156	50	Including lectures on Medical Jurisprudence and Diseases of Farm Animals, for neither of which there is any salary, in addition, practical excursions with students
Anatomy & Physiology,	115	116	115	115	114	115	117	113	115	115	115	112	108	198	In addition, superintending the class of Practical Anatomy and Demonstrations and *Dissections*
Practice of Medicine,	93	93	92	92	98	84	94	66	75	95	96	95	96	95	
Practice of Surgery,	93	94	93	91	91	92	94	96	94	94	94	84	94	93	Besides about twenty-five lectures each session on Operative Surgery.
Materia Medica,	92	91	91	93	90	90	92	90	84	84	84	84	84	84	
Midwifery,	92	92	92	91	90	93	93	93	93	95	90	80	80	76	Besides practical instruction to students which may be required at any hour throughout the year
English Law,	24	42	72	96	96	98	96	96	96	96	72	72	96	96	No third year Class in 1859-60, or *fourth* year Class in 1860-61
Jurisprudence and Political Economy,	24	48	96	120	120	120	120	120	120	96	120	120	120	120	

The above Return gives the number of Meetings of one hour each in each Class. The system of instruction includes, not merely *formal* Lectures, but also examination in the business of the course; in some classes these examinations are held daily, in others on fixed days of the week, according to the nature of the subject.

The Professors also conduct the General Scholarship Examinations, and some of them, in addition, the Matriculation and Supplemental Examinations.

* Including about 110 on Sanskrit and Hindustani.

OCTOBER EXAMINATIONS of Queen's College, Belfast, 1864.

Days.	Hours.	First Year Students.	Second Year Students.	Third Year Students.	Fourth Year Students.
Tuesday, Oct. 18.	9—12		Suppl. Ex. { English. Mod. Lang. Math	Suppl. Ex.—Mod. Lang., Math., Nat. Phil.	Senior Schol.—Latin.
	2—5		Suppl. Ex.—Greek, Latin.	Suppl. Ex.—Greek, Latin, Logic	Senior Schol.—Latin.
Wednesday, Oct. 19	9—12		Liter. Schol.—Greek.		Senior Schol.—Greek.
	2—5		Liter. Schol.—Greek.		Senior Schol.—Greek.
Thursday, Oct. 20.	9—12		Med. Engin. } Schol.—Chem.	Previous Examination, in Arts and Engineering, of Queen's University	Senior Schol.—Chem.
	2—5	Matric.—Math.	Med. Engin. } Schol.—Chem.		Senior Schol.—Chem.
Friday, Oct. 21.	9—12	Matric.—Greek, Latin			
	2—5				
Saturday, Oct. 22.	9—12	Matric.—English.	Engin. Schol.—Geo. Draw.		Senior Schol.—Mod. Hist.
	2—5	Matric.—English.	Engin. Schol.—Geo. Draw		Senior Schol.—Mod. Hist.

Monday, Oct. 24.	9—12		Med. Schol.—Botany.	Engin. Schol. { Geol. and Phys. Geog.	Senior Schol.—Nat. Hist.
	2—5	Lists of Matriculated Students to be made out.	Med. Schol.—Zoology.		Senior Schol.—Nat. Hist.
Tuesday, Oct. 25.	9—12	Science Med. Engin. } Schol.—Math.	Science Engin. } Schol.—Math.	Engin. Schol.—Math.	Senior Schol.—Math
	2—5	Science Med. Engin } Schol.—Math.	Science Engin } Schol.—Math. Med. Schol.—Anat. and Phys	Engin. Schol.—Math. Med. Schol.—Anat. and Phys.	Senior Schol.—Math. Med. Schol.—Prac. of Midw
Wednesday, Oct. 26.	9—12			Med. Schol.—Prac. Chem.	Senior Schol.—Nat. Phil. Med. Schol.—Prac. of Med.
	2—5	Liter. Med. } Schol.—English.	Liter Schol.—English Engin. Schol.—Exp. Phys.	Engin. Schol.—Nat. Phil.	Senior Schol.—Nat. Phil.
Thursday, Oct. 27.	9—12	Liter Med. } Schol.—Latin.	Liter Schol.—Latin.	Engin. Schol.—C Engin. Med. Schol.—Mat. Med.	Senior Schol.—Pol. Econ.
	2—5	Liter. Med } Schol.—Latin	Liter Schol.—Latin.	Engin Schol.—C. Engin	Senior Schol.—Pol Econ. Med. Schol.—Surg Anat.
Friday, Oct. 28.	9—12	Liter Med. } Schol.—Greek.	Liter Schol.—Mod. Lang		Senior Schol.—Mod Lang. Senior Schol.—Metaph. Med. Schol.—Anatomy.
	2—5	Liter Med. } Schol.—Greek.	Liter Schol.—Mod Lang		Senior Schol.—Mod Lang. Senior Schol.—Metaph. Med. Schol.—Physiology.

Students passing the Supplementary Examinations complete the previous year, and take rank accordingly

Hours of Lectures,—Session 1863-64.

Hours.	Arts.			Civil Engineering.			Medicine.
	1st Year.	2nd Year	3rd Year	1st Year	2nd Year.	3rd Year	
9 till 10	*French.* Monday Wednesday Thursday *German.* Tuesday Friday	*Mathematics.* Monday Tuesday Wednesday Thursday Friday		*French.* Monday Wednesday Thursday *German.* Tuesday Friday	*Mathematics.* Monday Tuesday Wednesday Thursday Friday		
10 till 11	*Mathematics.* Monday Tuesday Wednesday Thursday Friday	*French.* Monday Wednesday Thursday *German.* Tuesday Friday	*Honor Classes*	*Mathematics* Monday Tuesday Wednesday Thursday Friday			
11 till 12	*Latin.* Monday Wednesday Friday	*Nat. Philos. Exp. Phys* Monday Wednesday Friday *Mat. Phys.* Tuesday Thursday	*Eng Lit.* Monday Wednesday Friday	*Exp. Phys* Monday Wednesday Friday *Geom. Drawing* Tuesday Thursday	*Mineralogy and Geology.* Monday Wednesday Friday *Mat Phys* Tuesday Thursday	*Office and Field Work.* Tuesday Thursday	*Exp. Phys. 3 months.* Monday Wednesday Friday *Prac. Chem. 3 months, from Mar. 1.*
12 till 1	*Greek.* Monday Thursday Friday	*Latin.* Monday Wednesday Friday	*Metaphysics.* Tuesday Wednesday Thursday Friday *History.* Monday Wednesday Friday	*Geom., Drawing, &c Office Work.* Tuesday Thursday	*Office and Field Work.* Tuesday Thursday	*Office and Field Work.* Tuesday Thursday	*Anatomical Demonstrations.* Monday Tuesday Wednesday Thursday Friday

1 till 2		*Greek.* Monday Thursday Friday	*Zool. to Mar. 1* Monday Tuesday Wednesday Friday *Bot. from Mar. 1* Monday Tuesday Wednesday Thursday Friday		*Civil Eng* Monday Wednesday	*Nat. Philos. applied.* Tuesday Thursday	*Zool. to Mar 1.* Monday Tuesday Wednesday Friday	*Bot. from Mar 1.* Monday Tuesday Wednesday Thursday Friday	*Surgery.* Monday Tuesday Wednesday Thursday	*Med Juris* Friday
2 till 3	*English.* Monday Tuesday Wednesday Friday	*Logic.* Tuesday Wednesday Thursday Friday	*Pol. Economy* Tuesday Thursday Friday			*Civil and Mech. Eng* Monday Wednesday			*Anatomy.* Monday Tuesday Wednesday Thursday Friday	
3 till 4			*Chemistry.* Monday Tuesday Wednesday Thursday Friday	*Chemistry.* Monday Tuesday Wednesday Thursday Friday	Field Work and Engineering Excursions for 2nd and 3rd Year Students occasionally on Fridays and Saturdays for some hours			*Chemistry.* Monday Tuesday Wednesday Thursday Friday	*Midwifery* Monday Tuesday Thursday Friday	*Medical Jurisprud.* Wednesday
4 till 5			Chemical Laboratory open from 9 A.M. till 3 P.M.					*French.* Monday Thursday or from 9-10 a.m	*Materia Med.* Monday Tuesday Wednesday Thursday	*Prac Med.* Monday Tuesday Wednesday Thursday

FACULTY OF LAW.—HOURS OF LECTURES.

1st Year.				2nd Year				3rd Year		4th Year.					
6 o'clock, P.M.	*Law of Property.* Monday Wednesday Friday	7 o'clock, P.M.	*Jurisprudence.* Monday Wednesday Friday	6 o'clock, P.M.	*Equity and Bankruptcy.* Monday Wednesday Friday	8 o'clock, P.M.	*Civil Law.* Monday Wednesday Friday	11 o'clock, A.M.	*Common and Criminal Law.* Tuesday Thursday Saturday	10 o'clock, A.M.	*Evidence and Pleading* Tuesday Thursday Saturday	8 o'clock, P.M.	*Constitutional & Colonial Law* Monday Wednesday Friday	1&3 o'clock, p.m	*Medical Jurisprudence.* Wednesday, 3 o'clock Friday, 1 o'clock

Appendix, No. 7.

Digest of Subjects and Courses.

APPENDIX, No. 7.

An Enlarged Digest of Subjects and Courses pursued in Queen's College, Belfast.

Greek—*Professor, Charles MacDouall,* LL.D., M.R.A.S.

In the Greek Class, as in all those which are attended during more than one session, the business, as well as the hours assigned to the Students of the different years, is necessarily different; but it is always distributed into three simultaneous processes, viz., public examinations, lectures more or less formal, and exercises written at home and commented on in the class.

In the first session, the complex and self-contained structure of the Greek language is subjected to a close analysis; carried out, on the one hand, by tracing words to their crude forms, by classifying terminations, both the primary and the flexional, and by discriminating among analogically correct forms those actually used in different ages and dialects; on the other hand, by exhibiting the methods by which words are combined in simple clauses, clauses are knit into sentences, and sentences compose periods less or more complicated. Some prose-work furnishes the materials for this analysis; while the Students read and translate it, or else re-translate off-hand passages read out in English before them by the Professor. Besides syntactical phænomena, the laws and characteristics of both epic and dramatic versification are expounded and exemplified, while a portion of the *Ilias* and some tragedy are used as text-books.

In the second session, while consecutive passages of Herodotus along with some Attic oration or philosophical treatise, and a book of the *Odysseia* along with some Attic tragedy or comedy, form the basis of prelections, the previous discipline is continued and extended; the distinctions of dialect and style are more fully elucidated; the origin, growth, and fortunes of the epos, the drama, history, and other departments of literature, are more distinctly unfolded; discussions on points of mythology, geography, chronology, archæology, æsthetics, &c., are more freely introduced and more amply treated. The Students are required to turn Herodotean Greek, at sight, into Attic, altering both the forms of words and the structure of sentences; to re-translate passages into Greek prose and verse; and also to give in original essays in both forms of composition.

Considering the variety of subjects which enter simultaneously into the first and second Sessions of the Collegiate Course, the Students generally appear to give a fair share of their attention to the Greek Language and Literature Several times in the week a considerable number voluntarily attend extra Lectures, at which no note is taken of their presence or of their absence.

In a distinct or higher class, advanced Students, generally in the third or fourth year of their Course, are exercised in the study of more difficult works than those previously read, in the higher problems of criticism and philology, and especially in composing both prose and verse.

The following text-books have been used in the successive Sessions of College from 1849–50 to 1863–64:—*Ilias*, Books III., VI., X., XI., XII., XIII., XIV., XV., XVI., XVII., XVIII., XIX., XXI., XXII., XXIV.; *Odysseia*, Books I., XI., XII., XIII., XIV.; Hesiodus, *Theogonia;* Pindarus, *Olympia*, *Pythia*, *Nemea;* Aeschylus; all the Tragedies except the *Supplices;* Sophocles, the seven Tragedies; Euripides, *Alcestis*, *Hippolytus*, *Hecabe*, *Phoenissae*, *Orestes*, *Hercules Furens*, *Bacchae*, *Ion*, *Iphigeneia in Aulide*, *Iphigeneia in Tauris;* Aristophanes, *Nubes*, *Aves*, *Ranae;* Herodotus, Books I., II., IV.; Thucydides, Books I., II.; Xenophon, Portions of *Anabasis* and *Cyropaedeia;* Platon, *Apologia Socratis*, *Gorgias*, *Phaedon*, *Phaedrus*, *Philebus*, *Timaeus*, *Theaetetus;* Aristoteles, *Poetica* and portions of *Rhetorica;* Demosthenes, c. *Meidiam* and *de Corona;* Aeschines, *in Ctesiphontem.*

Sanskrit and Hindustani.

The Classes for these Languages (conducted by the Professor of Greek) are at present attended chiefly by Students who either have already obtained or are preparing to compete for Appointments in the Indian Service; but the Sanskrit

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Class begins to attract others also, as the importance of some practical acquaintance with Sanskrit, especially in relation to Classical Studies and to Comparative Philology, is now generally recognised.

Either Class may be attended separately; or a two years' Course may be taken, in which Sanskrit alone is studied during the first year, while Sanskrit and Hindustani (including the elements of Persic) occupy the second.

LATIN—*Professor, Charles Parsons Reichel,* D.D.

The Professor of Latin lectures Students of the First and Second Years each set three hours a week; attendance on the lectures being compulsory for those who take the Classes of Latin. Besides these compulsory lectures, he gives two lectures additional to Students of each of these years, attendance on which is voluntary, in which more difficult authors are read, and special attention is paid to composition. The attendance on these lectures is very good.

An honor Class has lately been formed of Students of the Third and Fourth Years, chiefly attended by those who are anxious to distinguish themselves in Ancient Classics at the Degree Examination.

The number of hours during which the Professor lectures each week is thirteen.

HISTORY AND ENGLISH LITERATURE.—*Professor, George Lillie Craik,* LL.D.

The Professor of History and of English Literature has now three Classes: one entitled the Class of the English Language, which is taught for one Term, and is attended, according to the Curriculum for Degrees in Arts, by Students of the First Year; the others entitled the Classes of English Literature and of History, taught for two Terms, and attended by Students of the Third Year.

It is important to observe, that by this arrangement there is added, to the two distinct subjects which are combined in the designation of the chair, a third subject perfectly distinct from either; each of the three, at the same time, like every other great department of human knowledge and speculation, having several subdivisions.

I. The Class of the English Language is taught by means of—

1. A Course of Lectures on the origin, history, and constitution of the language, and on the principles of Universal Grammar.
2. Examinations on a printed text-book, prepared by the Professor, entitled, "Outlines of the History of the English Language."
3. Exercises in Composition, both in prose and verse; and
4. A Course of Critical Readings, directed more especially to the philology of the language, both in its principles and in its details.

The business of the Class, thus conducted, may be stated to comprehend the subjects of Universal Grammar, or the Philosophy of Language generally, with the elements of Comparative Grammar and of Linguistic Ethnology, the Philology of the English Language, and the Practice of English Composition.

II. The subject of English Literature is treated both historically and in reference to the principles of æsthetic and critical science. For the history of our literature, a work of the Professor's, entitled "A Manual of English Literature and of the History of the English Language," is employed as a text-book; and a Course of Lectures is delivered on the subject of Literature as one of the forms of the Artistic. There are regular examinations both on the text-book and on the Lectures; and essays, or other exercises in writing, are exacted.

III. The teaching of History has hitherto embraced the Outlines of Historical Geography; the Elements of Chronology; a Sketch of the General History of the World; a Course of Lectures on the Science of Historical Investigation; and a minute survey, by way of illustration, of various portions of the History of England, including the progress of the constitution and of society, as well as the course of public events and transactions, with special reference to the original authorities, and to the bibliography of the subject. Examinations are regularly held, the Students being left to collect the facts necessary to be remembered from the Lectures, and from any of the common histories.

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MODERN LANGUAGES.—*Professor, Wilhelm Frädersdorff,* PH.D.

French and German, between which languages the Students have an option, are taught at distinct hours.

In the First Year the Grammar is explained, and the Students are exercised chiefly in translating passages from French or German rather than in translating English passages into either language.

During the Second Year one day in each week is devoted to the study of some Foreign Classical work in prose, and a second to reading and commenting upon tragedy or poem; while the third day is occupied partly in criticising work previously done, but chiefly in translating some English passage into French or German, and in conversation upon a literary subject introduced in a paper composed and read aloud by the Professor.

In the Third Year the Students are trained in Original Composition and in translating from one Modern Language into another, and their attention directed to the principles of Comparative Philology. French or German is used exclusively in conversation.

Medical Students are instructed in the same way in a special class. "Physiologie Expérimentale" is used as a text-book for the higher division.

MATHEMATICS—*Professor, John Purser,* M.A.

Attendance on this Class is prescribed to all Students in the Faculty of Arts during the first year of their Course; during the second year Mathematics forms one of four Courses, out of which the Students select two.

All Students in the Department of Engineering are required to attend the Mathematical Classes during two years.

Before entering, Students are required to pass an examination in the First and Second Books of Euclid, and in a small portion of Algebra. Practically they come fairly prepared in the prescribed portions of Euclid, but a large proportion can hardly be said to possess even an elementary knowledge of Algebra. A considerable number of the Students are Candidates for Mathematical Scholarships at entrance, and these are generally well prepared in the first six Books of Euclid, and a considerable portion of Algebra and Plane Trigonometry.

On this account the instruction of the First Year in Mathematics has been given in two Divisions. The Lower Division has been carefully taken through such portions of Euclid I., II., III., IV., VI., as they had not previously prepared, and has received instructions in Algebra as far as the progressions, and in Plane Trigonometry as far as the solution of triangles, with the use of logarithms and trigonometrical tables. The instruction of the Upper Division comprises a complete Course of Algebra and Trigonometry, with the principal historical properties of the Conic Sections, treated geometrically.

The Council has sanctioned the employment of the Senior Mathematical Scholar in giving a portion of the instruction of the Lower Division. This arrangement, while it affords a greater number of hours to the Lower Division, enables the Professor of Mathematics to give more attention to the Upper Division, and has been found to work very satisfactorily.

In the Second Year the subjects of Lecture are Analytical Geometry, the Differential and Integral Calculus, and the first three sections of the Principia of Newton; and, in addition to this, when the progress of the Students has been sufficiently rapid during the early part of the Session, the solution of the simpler kinds of Differential Equations, and the principles of Analytical Geometry of Three Dimensions.

The instruction is carried on in great part by questions, which the Students are required to work out at the time, under the eye of the Professor, the questions having reference to those portions of the subject which have just been treated in the Lectures. The Professor then corrects their work, and gives such hints and explanations as are requisite.

For several years past a third and higher class has been formed for the benefit of the Students competing for University honors and the Indian Civil Service Examinations. The subjects of lecture are Geometry of three dimensions, Differential Equations, and other branches of the higher Mathematics, according to the advance which the Students have made.

THE PHYSICAL CLASSES—*Professor, John Stevelly,* LL.D.

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The subjects taught in the Physical Classes are distributed under three subdivisions: Mathematical Physics, Experimental Physics, and Natural Philosophy applied.

The subjects comprised in the Course of Mathematical Physics are—Mechanics (under its several statical and dynamical subdivisions), Hydrostatics, Hydraulics, Pneumatics, Acoustics, Optics, and Astronomy. The Students who attend this class are the Matriculated Students who are seeking a Degree in Arts, the Engineering Students of the Second Year, and Non-Matriculated Students, some of whom are Candidates for the ministry in the Presbyterian Churches. Attendance at the Lectures three days in each week is imperative on all those Students, and one hour in each week is occasionally employed in asking questions from prescribed parts of Galbraith and Haughton's Manual. Two days in the week attendance is optional, when Analytical Mechanics and the higher branches of Physics are taught. In the Lectures, attendance on which is imperative, such mathematical proofs and illustrations only are introduced as a person reasonably prepared in the six first Books of Euclid and Elementary Algebra might easily comprehend. The teaching is by prelection; and although no text-books are prescribed, the ordinary elementary works on the several subjects are pointed out and referred to. At the Lectures, attendance on which is voluntary, the demonstrations and investigations are pursued in a more systematic and mathematical method, so as to require a knowledge of Analytic Geometry, Conic Sections, and the Differential and Integral Calculus. Text-books are used for the guidance of the Students attending these Lectures, who are chiefly those who are intending to compete for Honors. These text-books are Earnshaw's and Todhunter's Statics, Wilson's Dynamics, Tait's Dynamics of a Particle, Miller's Hydrostatics, Lloyd's Optics and Lectures on the Wave Theory of Light, Herschell's Astronomy. and two of Airy's Tracts, with occasional reference to Du Hamel's Cours de Mecanique, and to Poisson's Works.

The Class of Experimental Physics is attended by the same Students, and also by Agricultural Students of the Second Year, and by Medical Students of the Third Year. The subjects of these Lectures are taught entirely without mathematical demonstration, by the aid of experiments, illustrations, drawings, and models, and such works as Lardner's Hand-book, Golding Bird's Physics, Webster's Physics, Miller's Chemistry, Vol. I., Arnott's Elements, Biot, Ganot, Pouillet, Peschel, and such like standard works are referred to, and recommended to the attention of the Students. The subjects of Heat, Electricity, and Electro-Magnetism are at present chiefly taught in the Chemical Class; but the leading facts and principles are taught by selections from Biot, Pouillet, Ganot, and Miller.

The Class of Natural Philosophy applied is intended for Students in Engineering of the Third Year, by the recent University Ordinance; lectures and instructions twice in the week. The subjects embraced are the nature and estimate of work done; the kinds of work required to be done; the nature and laws of friction, and other useless resistances; the moving powers at our command, their respective nature and the laws which govern their action; the manner in which they are, by machinery, connected with and opposed to the resistances; the construction of machines; the principles of strength of materials as opposed to strains; the equilibrium of structures, frames, roofs, arches, domes; the general principles of mechanism; general maxims in the structure and working of machines; maximum effects of machines; hydraulic engines; the steam engine. The works used as guides to the studies of the Students in this Class are selections from Lloyd's and Robinson's Mechanics, Willis's Principles of Mechanism, Barlow on Materials and Construction. Hodgkinson's Experimental Researches, Tredgold, Tate's Elementary Treatises and Exercises, and selected numbers of Weale's Rudimentary Series.

CHEMISTRY.—*Professor, Thomas Andrews,* M.D., F.R.S., M.R.I.A.

In the Class of Chemistry the greater part of the Course is devoted to pure Chemistry; but the Elements of the Sciences of Heat and Electricity, particularly in their relations with Chemistry Proper, are also taught. The application of these sciences to the arts are particularly referred to; and it has been the

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constant endeavour of the Professor to communicate to the Students as precise and accurate information as possible on the subjects treated in his Lectures, and to train them to habits of careful observation and accurate thinking. With this view a weekly examination of the whole Class is held, at which the Students are subjected to a searching examination on the business of the preceding week; and further to encourage a taste for scientific inquiry, and also to train a certain number of practical chemists, a limited number of the best Students are admitted, by examination, as working pupils into the chemical laboratory, where they have an opportunity of acquiring a knowledge of chemical analysis. This latter arrangement has now been in practice for several years, and has already been attended with the best results.

NATURAL HISTORY—*Professor, Wyville Thomson,* LL.D.

The Zoological Department of the Course occupies the First Term and greater part of the Second, and comprehends the Outlines of Anatomy and Physiology of animals, followed by Systematic Zoology, and remarks on the distribution of animals.

The Botanical part comprehends Vegetable Anatomy and Physiology, Systematic Botany, and distribution of vegetable forms. In addition to the Class Lectures, meetings are held in the Botanic Garden, and practical excursions made into the neighbouring country.

This Course comprehends chiefly Lectures on the structure and form of continents and islands; the distribution of mountain systems, rivers, and lakes; the ocean, its currents, temperature, &c.; the atmosphere, its currents, &c.; rain, snow, &c. The preceding subjects are considered in relation to the geographical distribution of animals and plants.

These different branches are illustrated by specimens, or drawings, or both, as the case may be.

GEOLOGY AND MINERALOGY—*Professor, Wyville Thomson,* LL.D.

The Courses consist of lectures, demonstrations, and examinations. The Geological Course embraces the general principles of the science, and a detailed investigation of the palæontological, lithological, and economic characters of all the formations. The Students are exercised in the practical use of the necessary instruments, and in the construction of Geological maps and working sections. The characteristic fossils of the different formations are rendered familiar by the exhibition of specimens and models, and an excellent series of drawings. Drawings are also used for the illustration of the underground workings of mines of copper, coal, &c.

In the Mineralogical Course the Students are instructed in the most modern crystallography by models, and exercised with the reflecting goniometer. The electro-chemical classification of minerals is then explained, and an extensive suite of minerals in the museum is arranged on that system, for the instruction of the Students.

Once a week examinations are held, and additional explanations given of the subjects of the preceding lectures.

LOGIC AND METAPHYSICS—*Professor, Rev. James M'Cosh,* LL.D.

LOGIC.

Students attend this Class four days each week during twelve weeks of the Second Session. On two of these days there are examinations on a text-book of Formal Logic, with short prelections on the said text-book, and also the oral explanation of philosophic terms, the reading of Essays by the Students, and the criticism of them by the Professor. On the other two days the Professor delivers written Lectures. This Course of Lectures is divided into two parts: FIRST, GENERAL LOGIC, or an Exposition of the Laws of Thought in general, that is, whatever be the object of thought, embracing Notions, Judgment, and Reasoning; SECONDLY, PARTICULAR LOGIC, or the Development of the Laws of Thought, as directed to particular classes of objects, comprising Demonstrative Evidence, Probable Evidence, Induction, Analogy, Teleology, and the Relation

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of the Organon of Bacon to that of Aristotle. The prominent topic in the second part is the Method of Induction, which is treated under the heads:—I. The Means, being generally Systematic Observation, and more particularly Analysis, Observation Proper, Experiment, Hypothesis, Explication of the Conception. II. The End, being the Discovery of Classes (as in Natural History, &c.), or Causes (as in Natural Philosophy, &c.). III. The Canons of Classes and Causes by which we may reach the End by the Means. The Students are required to give in a short written essay once a fortnight. At the Pass Examination, at the close, about one-half of the questions bear upon subjects discussed in the text-book, and the other half upon topics explained in the lectures.

METAPHYSICS.

This Class meets four days each week, and an hour each day, during the first two terms of the Session, and is attended by Students of the Third Year. On one of these days there is a rigid examination, with interspersed remarks by the Professor, on the second half of the Epitome of the History of Philosophy, sanctioned by the University of France (translated by Henry). In this part of the text-book there is an abstract of the doctrines of the more eminent philosophers who have flourished in this country, and on the Continent of Europe, from the time of Bacon to the present day. On another of these days there is an examination on the written lectures, together with the reading and criticism of essays; the Students being required to give in a carefully written essay every fortnight to the Professor, who reads it at home, and selects certain portions of it to be read in the class, where he criticises it. These essays are on the leading subjects discussed in the written lectures. On the other two days the Professor delivers carefully prepared written lectures. He begins the course with a few lectures on the Method of Investigation, which is that of Induction, and on Mind and Body, and then proceeds to divide his course into two parts, PSYCHOLOGY and METAPHYSICS PROPER.

Under PSYCHOLOGY he treats (1) of the Powers or Faculties of the Mind, and (2) of the Laws of the Succession of Thought. He classifies the faculties as follows:—I. The Simple Cognitive Faculties: (*a*) Perception; (*b*) Consciousness. II. The Reproductive Faculties: (*a*) Memory; (*b*) Imagination; (*c*) Symbolic Power. III. The Faculties which Discover Relations: (*a*) of Identity and Difference; (*b*) of Whole and Parts (to which we owe abstractions); (*c*) of Space; (*d*) of Time; (*e*) of Quantity; (*f*) of Resemblance (to which we owe the Discovery of Classes); (*g*) of Active Property; and (*h*) of Cause and Effect. IV. The Conscience. V. The Emotions; and VI. The Will. In this course of lectures, which occupies two-thirds of the session, the method of operation and peculiarities of these mental attributes are carefully pointed out.

Under METAPHYSICS PROPER the Professor treats of the Native or Constitutional Principles of the Mind. He points out their true Psychological Nature, and shows that they are the fundamental laws or rules of the Faculties. He also specifies the tests, such as Self-evidence. Necessity, and Universality, by which they may be distinguished. He proves that they are in the constitution of the mind, and that they operate spontaneously, but that we can make a reflective or philosophic use of them only after we have detected their nature by a careful induction. He classifies them as the True and the Morally Good. Under the first he treats (1) of Primitive Cognitions and Beliefs, such as Body, Spirit, Substance, Power, Space, Time, the Infinite; and (2) Primitive Judgment, such as Substance and Quality, Mathematical Axioms, Cause and Effect. Under the Good, without entering into the subject of Ethics, he shows that there is a fundamental distinction between Moral Good and Evil. He closes this course by showing how all these principles should conduct us to the belief in a Being who is at one and the same time the True and the Good.

HONOR LOGIC.

The Professor has also an Honour Class, in which are discussed the higher questions of Logic (Formal and Inductive) and Philosophy. It meets three times a-week, and is attended by twenty-five Students. At two of the hours the Professor lectures on Logic and the History of Philosophy, and at the third hour there are examinations on text-books (including logical treatises by Mansel, Thomson, and Mill), and discussions.

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Civil Engineering—*Professor, James Thomson*, A.M., C.E.

The Courses of lectures and practical instruction given by the Professor of Civil Engineering are arranged to accord with the Ordinances of the Queen's University, which prescribe to candidates for the Diploma in Civil Engineering a Curriculum extending over three Sessions usually, but admitting of abbreviation to two Sessions in the case of students whose previous acquaintance with a sufficient group of the subjects prescribed for study in the first and second Sessions of the ordinary Course shall be deemed by the College Council satisfactory.

For the First Year Students the Professor gives a course of instruction, comprising lectures and oral examinations on the Principles of Geometrical Drawing, and the performance by the students of practical work under his direction. The lectures include the principles of descriptive geometry, orthographic and isometric projection, and linear perspective; and the practical work comprises the performance of examples in these subjects, and the execution of drawings in Mechanical Engineering, and occasionally also in Architecture and Civil Engineering. The Class meets for two hours at a time on two days per week during the three Terms of the College Session.

For the Second Year Students two courses are conducted by the Professor of Engineering, of which one is a Lecture Course and the other a Practice Course. The Lecture Course comprises surveying, levelling, and plotting, with the theory and use of the instruments required in surveying and levelling operations; mensuration of earthworks for railways; setting out works on the ground, including ranging of railway curves, and setting out breadths of cuttings and embankments, and ranging tunnels, &c. The Course also comprises usually some of the following subjects:—revision and farther prosecution of descriptive geometry, and perspective, and other subjects of geometrical drawing; designing and drawing of oblique bridges; properties and qualities of materials used in construction, and modes of procuring them; and an introduction to architecture as a fine art.

In the Practice Course of the Second Year the Students are engaged in the performance of office and field work, under the instruction and direction of the Professor; and the business includes surveying, levelling, drawing, mapping, and the computation of areas of lands, and other engineering calculations. Excursions are also made occasionally during the Session to visit Engineering works.

For the Third Year Students there are (as for those of the Second Year), two Courses conducted by the Professor, one a Lecture Course, and the other a Practice Course. The Lecture Course comprises the farther treatment of some of the subjects proposed to be entered on in the Second Year, and most of the following subjects:—foundations, cofferdams, bridges, tunnels, roads, and railways; specifications for engineering contracts; water-works for supplying towns; science of the flow of water in orifices, pipes, and canals; drainage of fens by gravitation, and by steam power and other mechanical means; harbours; regulation and improvement of rivers; science of the strength of materials and structures; ventilation of dwelling-houses, public buildings, and mines; the iron manufacture; processes and mechanisms used in foundries and engineering workshops.

The Practice Course includes office work, field work, and engineering excursions.

Anatomy and Physiology—*Professor, Peter Redfern*, M.D., Lond., F.R.C.S.I.

The Department of Anatomy and Physiology comprises two distinct Courses of Lectures—one on Anatomy and Physiology, the other on Descriptive and Surgical Anatomy, and also the teaching of Anatomy by Dissections throughout the day.

The Course of Anatomy and Physiology includes about 115 meetings, each of an hour's duration, held on the first five days of each week from November to April inclusive. These meetings are for lecture and occasional examinations on the subjects previously considered in the lectures. The lectures include a complete course of the Anatomy and Physiology of the general textures of the body, including the blood, chyle, &c., and a systematic account of the whole of the viscera, treated of as they are associated in groups for the several purposes of digestion, circulation, respiration, urination, innervation, and generation; also the organs of sense. In treating of every part or organ its healthy state is

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shown by recent dissections and by preparations from the Museum illustrating it in man and animals, its diseased states and actions being referred to at the same time and contrasted with the healthy ones. The textures not visible to the naked eye are shown under a series of achromatic microscopes, so that during the Course every student in the class has an opportunity of judging for himself of the true characters of each part, and, by becoming familiarized with these, of recognising each when changed by disease.

The Course of Practical Anatomy and Anatomical Demonstrations includes:—

1st. Dissections carried on throughout the day under the immediate superintendence of the Professor of Anatomy and Physiology, and the Demonstrator. Each Student is required to be steadily engaged in dissections during the whole Session. For this purpose the supply of subjects is regular and abundant, and thus affords the surest foundation for efficient medical teaching.

2nd. This Course includes the Anatomical Demonstrations, which consist of a complete Course of Descriptive and Surgical Anatomy, commencing with the anatomy of the skeleton and bones, and including the anatomy of the limbs and other parts, excluding that of the viscera and the physiology treated of in the Course of Anatomy and Physiology. The demonstrations are given on each of the first five days of the week, and are about 115 in number in each Session.

By the erection of part of the Anatomical buildings in the College grounds the Students have been relieved from the inconvenience of walking to and fro, for the distance of a mile, between the Practical Rooms and the College, as formerly.

It is earnestly to be hoped that the remainder of these buildings will now be undertaken, that the Anatomical and Physiological collection in the College Museum may be made available for teaching in the new buildings, and that the injury resulting from carrying the preparations for Lecture down the stairs and across the seats of the present Class-room may be obviated.

PRACTICE OF MEDICINE—*Professor, John Creery Ferguson,* M.A., M.B., *Hon. Fellow of King and Queen's College of Physicians, &c.*

The class meets four times each week, from the first week of November to the last of the following April.

An examination is held usually once a fortnight. The Course embraces the principles of Inflammation, Fevers, the diseases, organic and functional, of the viscera of the three great cavities of the human body. In treating of individual diseases, their pathology, semeiology, ætiology, and treatment, are the subjects chiefly dwelt on. Wherever it is possible, pathology is illustrated by the preparations afforded by our Museum, by drawings and plates, or by recent specimens. It may be added that the Professor's present connexion with the Belfast General Hospital adds greatly to the means of making his Course more useful and interesting to students.

THEORY AND PRACTICE OF SURGERY—*Professor, Alexander Gordon,* M.D.

Four Lectures are delivered weekly during the Medical Session. An examination is held each day on the subject of the preceding day's Lecture. Each Course comprises the following subjects:—

Inflammation,
Suppuration,
Mortification,
Erysipelas,
Burns,
Ulcers,
Wounds,
Hæmorrhage,
Diseases of the Arteries,
,, Veins,
Fractures of Trunk and Extremities,
,, Cranium, Injuries of the Brain and Scalp,
Dislocations,
Diseases of the Joints,

Diseases of the Bursae,
,, Bone, benign and malignant,
,, the Jaws and Mouth,
,, the Fingers and Toes,
,, Female Breast,
,, Anus and Rectum,
,, Testis,
,, Hernia,
,, Prostate,
,, Bladder,
,, Eyes,
,, Larynx,
Syphilis,
Gonorrhœa,
Stricture.

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All the capital and minor operations are performed on the dead subject. The Professor delivers a separate Course of twenty-five Lectures on Operative Surgery.

MATERIA MEDICA—*Professor, James Seaton Reid,* M.D.

This Course includes—

1st. General Pharmacology, or the modes in which medicines act upon the living organism in a state of health.

2nd. Therapeutics, or the modes in which medicines act as curative agents.

3rd. Pharmacy.

4th. Dietetics, a review of the different kinds of food used in health and in disease.

5th. Special Pharmacology, or the history, composition, uses, and modes of administering medicinal agents for the cure of disease.

The Class meets four times each week. An examination is held once every week.

MIDWIFERY—*Professor, William Burden,* M.D.

Lectures four times a week during the six winter months consist of following subjects:—

Anatomy of the pelvis, so much as is required for midwifery. Its measurement and pelvimeters.

Contents of the pelvis. The functions of the uterus in its virgin state.

Conception—length of gestation—changes of the uterus and its appendages during gestation.

Growth of child from its earliest seen form until its full parasitic size.

Graafian vesicle and corpus luteum. Fœtus, its circulation, signs of maturity, weight, and length.

Plural births.

Proportion of births and deaths of males to females.

Superfœtation.

Signs of pregnancy.

Signs of approaching labour.

Natural labour, its progress; also the positions and progress of child till its separation from its mother.

Management of natural labour, including the arrangement of the bed and bed-room, and the proper dress and posture of the patient.

Tedious labour, its causes and treatment.

Labour requiring the use of instruments; their application taught on models in the class.

Cæsarean section and Sequltean operation—how to prevent the fœtus from getting large in uterus.

Premature labour—how to bring it on, and when it is necessary to do so.

Cross-births and their treatment.

Abortion—how to prevent it.

Extra uterine fœtations—how they occur, and their treatment.

Management of women after delivery, and treatment of such accidents and diseases as occur at this period.

Management of children after birth, washing, dressing, food, &c., and the choice of a wet-nurse, and treatment of such accidents as take place at this period, or soon after.

Practical midwifery taught by pupils attending patients in their own houses and in the Lying-in hospital, where Clinical Lectures are given.

MEDICAL JURISPRUDENCE—*Professor, Dr. Hodges.*

The Lectures in this Course are delivered twice weekly during six months. They include an account of the history and chemical investigation of poisons, and of the various subjects respecting which the evidence and assistance of Medical Practitioners may be required in Courts of Law. Experimental illustrations of the methods to be pursued in medico-legal inquiries are given, and frequent examinations held to test the progress of Students. No salary has been allocated to the Teacher of this department, and the duties, at the request of the Council, have, since the opening of the College, been performed by Dr. Hodges.

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English Law—*Professor, Echlin Molyneux*, Q.C.

The Professor of English Law, in conducting his department, has constantly kept in view the object of the Select Committee of the House of Commons in recommending the foundation of Chairs in Law in connexion with the Queen's Colleges, which, as they stated in their Report on Legal Education, was not merely to prepare Candidates for the Bar, and for the profession of Attorney and Solicitor, but to raise the standard of legal attainments amongst local practitioners, and especially to provide opportunities of legal education to qualify persons intended to fill administrative situations not strictly legal—a policy which has been since followed up by the Legislature conferring privileges, by way of inducement, on Candidates for the profession of Attorney and Solicitor, who shall avail themselves of these Schools of Law.

The Course of the *First* year in this department comprehends the elements of real and personal property, with the principles of conveyancing; that of the *Second* consists of an introduction to the principles and practice of Courts of Equity and the law of Bankruptcy; the *Third* Course includes the common law as incident to contracts, the nature and form of remedies by civil action, and an outline of criminal law, theoretical and administrative, which last completes the Curriculum of instruction required for the attainment of the Diploma of Elementary Law in the Queen's University. The subjects prescribed for Students of the *Fourth* year to qualify them for the Degree of LL.B. embrace a more extended and detailed course of the subjects already enumerated, including the law of wills, powers, evidence, and procedure.

The Lectures are made auxiliary to the cotemporaneous studies directed, and are accompanied by interrogation, independent of the General Examination and that for Honors. Such books, cases, and decisions, and portions of treatises are pointed out for reading as are considered by the Professor most useful in elucidating a branch of learning which is scarcely furnished with books exclusively intended for instruction; and no efforts have been spared to point out the peculiarities of the law in Ireland, whether proceeding from statutes or inherent diversity of practice, or to direct attention to the recent changes which have been introduced into the course of procedure.

From the first opening of the College to the present time the successive classes have spontaneously applied themselves with assiduity and perseverance to the various subjects of legal instruction, and several Non-Matriculated Students have from time to time availed themselves of the privilege afforded by the College Ordinances of attending detached Courses of the Lectures on selected subjects.

Under these circumstances, the Professor is gratified at being able to give the assurance that the Faculty of Law has fully realized the objects of its founders, and that a further extension of its public benefits would ensue upon the adoption by Government of the suggestion made by the same Committee of the House of Commons that a preference should be given to candidates for situations in the Civil Service, not of a purely legal nature, who could produce testimonials of legal attainments from those institutions—a rule which would fully accord with the principle laid down in a recent report of another Committee in relation to the Civil Service.

Jurisprudence and Political Economy—*Professor, T. E. Cliffe Leslie*, LL.B.

The subjects embraced in the Course of Lectures on *Jurisprudence* are according to the regulations of this College, (1) the Elements of Jurisprudence, (2) Civil Law, (3) Constitutional Law, (4) Colonial and International Law.

In the treatment of these subjects both the *Historical* and *Philosophical* Methods are followed in the Lectures of the Professor. The Historical Method, for example, is applied in tracing the principal changes through which the laws

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Digest of Subjects and Courses.

of England have passed, the assignable causes of such changes, and the degree and manner in which, in comparison with the laws of Continental Europe, the laws of this kingdom have been affected by contact with the principles of Roman legislation. The method of Philosophical Analysis, on the other hand, is applied in investigating the doctrines of the foundation and classification of rights, the several parts and legitimate form of a complete code, the relation of Scientific Jurisprudence to other departments of Social Philosophy, and the means of improving the state of Positive Law as deducible from such considerations.

The subjects which a Course of Lectures on *Political Economy* must embrace are fewer and more definite than those classed under the less advanced and more complicated Science of Jurisprudence. It is the Professor's endeavour to illustrate the principles of Economic Science by the help of those practical applications which will be most interesting and useful in a large commercial town.

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General Class Examination.

APPENDIX No. 8.

GENERAL CLASS EXAMINATION at the end of the SESSION 1862-63.

FIRST YEAR STUDENTS.

GREEK—*Examiner, Professor MacDouall.*

I. Translate accurately and perspicuously these lines from the XVIIth Book of the *Ilias* :—

Ἵπποι δ' Αἰακίδαο[1] μάχης ἀπάνευθεν ἐόντες[1]
κλαῖον, ἐπεὶ δὴ πρῶτα πυθέσθην[1] ἡνιόχοιο[2]
ἐν κονίῃσι[1] πεσόντος[1] ὑφ' Ἕκτορος ἀνδροφόνοιο.[2]
ἦ μὴν Αὐτομέδων Διώρεος ἄλκιμος[2] υἱὸς
πολλὰ μὲν ἂρ μάστιγι θοῇ[2] ἐπεμαίετο[1] θείνων,[1]
πολλὰ δὲ μειλιχίοισι[2] προσηύδα,[1] πολλὰ δ' ἀρειῇ·[2]
τὼ[1] δ' οὔτ' ἂψ ἐπὶ νῆας[1] ἐπὶ πλατὺν Ἑλλήσποντον
ἠθελέτην[1] ἴεναι[1] οὔτ' ἐς πόλεμον μετ' Ἀχαιούς,
ἀλλ' ὥς τε στήλη[2] μένει ἔμπεδον,[2] ἥ τ' ἐπὶ τύμβῳ
ἀνέρος ἑστήκει[1] τεθνηότος[1] ἠὲ γυναικός,[1]
ὣς μένον ἀσφαλέως[2] περικαλλέα[1] δίφρον[2] ἔχοντες
οὔδει[1] ἐνισκίμψαντε[2] καρήατα[1] δάκρυα δέ σφιν[1]
θερμὰ κατὰ βλεφάρων[2] χαμάδις[2] ῥέε[1] μυρομένοισιν
ἡνιόχοιο πόθῳ·[2] θαλερὴ[2] δὲ μιαίνετο[1] χαίτη
ζεύγλης[2] ἐξεριποῦσα[1] παρὰ ζυγὸν ἀμφοτέρωθεν.
μυρομένω[1] δ' ἄρα τώ γε ἰδὼν ἐλέησε[1] Κρονίων,
κινήσας δὲ κάρη[1] προτὶ[1] ὃν μυθήσατο θυμόν·
"ἆ δειλώ[2]! τί σφῶϊ[1] δόμεν[1] Πηλῆϊ[1] ἄνακτι
θνητῷ, ὑμεῖς δ' ἐστὸν ἀγήρω[1] τ' ἀθανάτω τε;
ἦ ἵνα δυστήνοισι[2] μετ' ἀνδράσιν ἄλγε' ἔχητον;
οὐ μὴν γάρ τί πού ἐστιν οϊζυρώτερον[2] ἀνδρὸς
πάντων, ὅσσα[1] τε γαῖαν ἔπι πνείει[1] τε καὶ ἕρπει.
ἀλλ' οὐ μὴν ὑμῖν γε καὶ ἅρμασι δαιδαλέοισιν
Ἕκτωρ Πριαμίδης ἐποχήσεται·[1] οὐ γὰρ ἐάσω.
ἦ οὐ ἅλις,[1] ὡς καὶ τεύχε'[1] ἔχει καὶ ἐπεύχεται[1] αὔτως[1];

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σχῶϊν^{1} δ' ἐν γούνεσσι^{1} βαλῶ^{1} μένος ἠδ' ἐνὶ θυμῷ,
ὄφρα καὶ Αὐτομέδοντα σαώσετον^{1} ἐκ πολέμοιο
νῆας ἔπι γλαφυράς^{2}· ἔτι γάρ σφίσι^{1} κῦδος ὀρέξω,^{1}
κτείνειν, εἰς ὅ κε νῆας ἐϋσσέλμους^{2} ἀφίκωνται^{1}
δύῃ^{1} τ' ἠέλιος^{1} καὶ ἐπὶ κνέφας ἱερὸν ἔλθῃ.

II.—1. Parse fully and accurately the words thus numbered; noticing peculiarities in regard to the flexion of nouns and verbs, the omission of the verbal augment, the use or absence of contraction, and other distinctive features of the Homeric language.

2. Derive or decompound the words thus numbered, concisely illustrating any of them which may invite special remark.

3. Exemplify from the extract the Homeric usage of the distinctive pronoun (or "article"), and also of some other pronouns and of various particles; explaining likewise the *regimen* exercised here by one or two prepositions, and any *elleipsis* which may not be common in Attic.

4. Exemplify distinctly the rules of Homeric versification in regard to *hiatus* or the concurrence of final with initial vowels or diphthongs, setting aside instances that are only apparent, and pointing out any which—though real—are rare.

5. You may subjoin one or two very concise notes upon matters directly suggested by aught in the extract.

LATIN.—*Examiner, Rev. Dr. Reichel.*

A.—Translate :—

CICERO ATTICO S.

1. Nihil *ἐνκαιρότερον* epistola tua, quae me sollicitum de Quinto nostro, puero optimo, valde levavit. Venerat horis duabus ante Chaerippus: mera monstra nuntiarat. De Apollonio quod scribis, *qui illi dii irati!* homini graeco, qui *conturbare* quidem putat sibi licere: quod equitibus Romanis: nam Terentius suo jure. De Metello *ὀυκ ὁσιή φθιμενοισιν*, sed tamen multis annis civis nemo erat mortuus qui quidem. . . . . . Tibi nummi meo periculo sint: quid enim vereris quemcunque heredem *fecit?* Nisi Publium fecit. Verum fecit non improbe, quamquam fuit ipse. Quare in hoc thecam nummariam non retexeris: in aliis eris cautior. Mea mandata de domo curabis: praedia locabis: Milonem admonebis. *Arpinatium fremitus est incredibilis de Laterio.* Quid quaeris? equidem dolui: *ὁ δ' ὀυκ ἐμπάζετο μύθων.* Quid superest? etiam. Puerum Ciceronem curabis et amabis ut facis.

Comment on the words and phrases printed in italics.

2. HE. Alienus quum eius incommodum tam aegre feras,
Quid me patrem par facerest, quoi illest unicus?
ER. Ego alienus? alienus ille? ah Hegio,
Numquam istuc *dixis*, neque animum *induxis* tuum:
Tibi ille unicus, mihi etiam unico magis unicust.
HE. Laudo malum quum amici tuum ducis malum.
Nunc habe bonum animum. ER. oieï huic illut dolet,
Quia nunc remissus est edundi exercitus.
HE. Nullumne interea nanctu's, qui posset tibi
Remissum quem dixti imperare exercitum?
ER. Quid credis? fugitant omnes hanc provinciam.
Quoi optigerat post Philopolemus quam captust tuus.

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He. Non pol mirandumst fugitare hanc provinciam.
Multis et multigeneribus opus est tibi
Militibus: primumdum opus Pistorensibus:
Eorum aliquot genera sunt Pistorensium:
Paniceis opus est, opus Placentinis quoque,
Opus Turdetanis, opus est, Ficedulensibus:
Tum maritumi omnes milites opus sunt tibi.
Er. Ut saepe summa ingenia in occulto latent:
Hic qualis imperator nunc privatus est!
He. Habe modo bonum animum, nam illum confido domum
In his diebus me *reconciliassere.*

Plautus.

Comment on the words and forms printed in italics.

QUESTIONS.

B.—1. Give the date of the institution of the censorship as a separate office; and state in Livy's words, if you can, the duties of that office.

2. What was its original term of office? when and by whose law was that term cut short? and how did the censors revenge themselves on the author of the law?

3. This law was once set at nought: when, and by whom?

4. Give the dates, in years of the city, of the introduction of the consulate, praetorship, tribuneship, aedileship, and state the functions of each of these offices.

5. There were two kinds of quaestors: specify them.

6. Give the Greek words for the above-named Roman magistracies.

7. Name the original seven hills of Rome: and then give the subsequent list.

8. What was the *Roma quadrata?*

9. Name the three original tribes, and distinguish between them and the subsequent thirty-five tribes.

10. What were the seats of the original tribes, and their probable origin?

11. State the distinction between the *patres, plebes,* and *clientes.* What is the derivation of the last word?

12. What traces of the kingly power remained at Rome throughout the Commonwealth?

13. How was the interrex nominated? how long did he hold office? and under what limitations did he act?

14. Give the leading circumstances of Cicero's life, with dates.

15. Give what is known of the life of Plautus, with his correct name, and with dates of his birth (probable) and of his death.

16. How many of his comedies survive? How many were the *fabulae Varronianae?*

17. Specify the metres that occur in the *Captivi,* and give a description of them.

A.—Translate the following extracts into English:—

1. My. Quor tu obsecro hic me solam? Da. Hem, quae haec est fabula?
Eho Mysis, puer hic unde est, quisve huc attulit?
My. Satin sanu's, qui me id rogites? Da. Quem igitur rogem,
Qui hic neminem alium videam? Ch. Miror, unde sit.
Da. Dictura es quod rogo? My. Au. Da. Concede ad dexteram.

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MY. Deliras : non tute ipse ? DA. Verbum si mihi
Unum praeter quam quod te rogo . . . faxis cave.
Male dicis ? undest ? dic. MY. A nobis. DA. Hahahae :
Mirum vero, impudenter mulier si facit
Meretrix ? CH. Ah Andria haec est, quantum intellego.
DA. Adeon videmur vobis esse idonei,
In quibus sic illudatis ? CH. Veni in tempore.
DA. Propera adeo puerum tollere hinc ab ianua :
Mane : cave quoquam ex istoc excessis loco.
MY. Di te eradicent ; ita me miseram territas.
DA. Tibi ego dico an non ? MY. Quid vis ? DA. At etiam rogas ?
Cedo, cuium puerum hic adposisti ? dic mihi.
MY. Tu nescis ? DA. Mitte id quod scio : dic quod rogo.
MY. Vostri. DA. Quoius nostri ? MY. Pamphili ? CH. Hem. DA. Quid
Pamphili ?
MY. Eho, an non est ? CH. Recte ego semper fugi has nuptias.
DA. O facinus animadvertendum. MY. Quid clamitas ?
DA. Quemne ego heri vidi ad vos adferri vesperi ?
MY. O hominem audacem. DA. Verum : vidi Cantharam
Suffarcinatum. MY. Dis pol habeo gratiam,
Quum in pariundo aliquot adfuerunt liberae.—TERENCE, Andrias.

2. Quanto opere vero amicitias desideraret, quarum infidelitatem extimescebat, declaravit in Pythagoreis duobus illis : quorum quum alterum vadem mortis accepisset, alter ut vadem suum liberaret praesto fuisset ad horam mortis destinatam, Utinam ego, inquit, tertius vobis amicus adscriberer ! Quam huic erat miserum ! carere consuetudine amicorum, societate victus, sermone omnino familiari, homini praesertim docto et a puero artibus ingenuis erudito, musicorum vero perstudioso, poetae etiam tragico ; quam bono nihil ad rem : in hoc enim genere nescio quo pacto magis quam in aliis suum cuique pulchrum est. Adhuc neminem cognovi poëtam, et mihi fuit cum Aquinio amicitia, qui sibi non optimus videretur : sic se res habet, Te tua, me delectant mea : sed ut ad Dionysium redeamus, omni cultu et victu humano carebat ; vivebat cum fugitivis, cum facinorosis, cum barbaris : neminem qui aut libertate dignus esset aut vellet omnino liber esse, sibi amicum arbitrabatur.

CICERO, Tusculan Questions, Book V.

1. Comment on the passage from Terence, so as to explain the by-play.
2. Comment on the forms *faxis, excessis, adposisti, vesperi.*
3. Comment on the syntax of *quum* in the last line.

B.—Re-translate the following passage into Latin prose :—

Contests at home were ended. A Veientian war sprung up : with them the Sabines had united their arms. P. Valerius, the Consul, having summoned the auxiliary troops of the Latins and Hernicans, and being sent with the army to Veii, straightway attacks the Sabine camp, which had been pitched before the walls of their allies : and threw them into such confusion, that, whilst they run out in maniples, dispersed, some in this and some in that direction, to keep off the force of enemy, that gate was taken against which he had first advanced his standards.

After this it was more a butchery than a battle within the rampart. The tumult spreads even into the city from the camp : the Veientians run to arms in as much consternation as though Veii were taken. Some go to aid the Sabines : some attack the Romans whilst entirely intent on attacking the camp. For a little time their attention was drawn away, and they were thrown into confusion : then they themselves made a stand,

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turning their standards both ways: and the cavalry, sent in on them by the Consul, routs and puts to flight the Tuscans. And in the same hour two armies, two most powerful and considerable neighbouring nations, were conquered.—Livy.

English Language.—*Examiner, Professor Craik.*

1. Describe the position of the English Language in the Indo-European Family of Languages.

2. Give an account of the Celtic branch of the Indo-European Family of Languages.

3. Give an account of the branch of the Indo-European Family of Languages to which the English Language fundamentally belongs.

4. Explain the rule or principle according to which their names are given to the several Vowels in the English alphabet.

5. Enumerate the principal sounds known to other European languages which are not to be found in our modern standard English.

6. Give an account of the Orthographic System of the author of the Ormulum.

7. Mention any now obsolete forms or modes of expression which you remember in the Specimens that were read in the Class of former versions of the Scriptures.

8. Give an account of the Three distinct Forms, or Stages, which make up the entire known history of the English Language; describing the state, first, of the Vocabulary, secondly, of the Grammatical System in each, and mentioning the period over which each may be regarded as extending.

Modern Languages.—*Examiner, Dr. Frädersdorff.*

Translate into English :—

L'aurore, depuis des milliers d'années, n'a pas manqué une seule fois d'annoncer le jour. Elle le commence à point nommé, au moment et au lieu réglé. Le, soleil dit l'Ecriture, sait où il doit se coucher chaque jour. Par là il éclaire tour à tour les deux côtés du monde, et visite tous ceux auxquels il doit ses rayons. Le jour est le temps de la société, et du travail: la nuit, enveloppant de ses ombres la terre, finit toutes les fatigues et adoucit toutes les peines. Elle suspend, elle calme tout: elle répand le silence et le sommeil. En délassant les corps, elle renouvelle les esprits. Bientôt le jour revient, pour rappeler l'homme au travail, et pour ranimer toute la nature.

Mais, outre le cours si constant qui forme les jours et les nuits, le soleil nous en montre un autre, par lequel il s'approche pendant six mois d'un pôle, et au bout de six mois, revient avec la même diligence sur ses pas pour visiter l'autre. Ce bel ordre fait qu'un seul soleil suffit à toute la terre.

Cet astre ne fait pas moins de bien à la partie dont il s'éloigne, pour la tempérer, qu'à celle dont il s'approche, pour la favoriser de ses rayons. Ses regards bienfaisants fertilisent tout ce qu'il voit. Ce changement fait celui des saisons, dont la variété est si agréable. Le printemps fait taire les vents glacés, montre les fleurs et promet les fruits. L'été donne les riches moissons. L'automne répand les fruits promis par le printemps. L'hiver, qui est une espèce de nuit, où l'homme se délasse, ne concentre tous les trésors de la terre qu'afin que le printemps suivant les déploie avec toutes les grâces de la nouveauté. Ainsi la nature, diversement parée, donne tour à tour tant de beaux spectacles, qu'elle ne laisse jamais à l'homme le temps de se dégoûter de ce qu'il possède.—FENELON, *Démonstration de l'existence de Dieu.*

L'ancienne maison de Holstein, fondue dans celle d'Oldenbourg, était montée sur le trône de Danemarck, par élection, en 1449 : tous les royaumes du nord étaient alors électifs : celui de Danemarck devint bientôt héréditaire. Un de ces rois, nommé Christiern III, eut pour son frère Adolphe une tendresse ou des ménagements dont on ne trouve guère d'exemple chez les princes. Il ne voulait point le laisser sans souveraineté, mais il ne pouvait démembrer ses propres Etats : il partagea avec lui, par un accord bizarre, les duchés de Holstein-Gottorp et de Slesvick, établissant que les descendants d'Adolphe gouverneraient désormais le Holstein conjointement avec les rois de Danemarck, que ces deux duchés leur appartiendraient en commun, et que le roi de Danemarck ne pourrait rien innover dans la Holstein sans le duc, ni le duc sans le roi. Une union si étrange, dont pourtant il y avait déjà eu un exemple dans la même maison pendant quelques années, était depuis près de quatre-vingts ans une source de querelles entre la branche de Danemarck et celle de Holstein-Gottorp, les rois cherchant toujours à opprimer les ducs, et les ducs à être indépendants.

Translate into English :—

Der Pſalmſänger.

Der königliche Pſalmſänger hatte ſeinem Erretter eben eins der ſchönſten Lieder geſungen, und noch rauſchte das heilige Lüftchen, das beim Aufgang der Sonne durch ſeiner Harfe Klang ihn täglich weckte, in dieſer Harfe Saiten, als Satan gegen ihn ſtand und das Herz des Königs zum Stolz über ſeine Geſänge neigte. "Haſt du," ſprach er, "Allmächtiger, unter deinen Geſchöpfen eins, das ſüßer, als ich, dich lobe?"—Da flog im offenen Fenſter, vor dem er ſeine Hände ausbreitete, eine Heuſchrecke auf den Saum ſeines Kleides und fing ihren hellen Morgengeſang an. Bald verſammelte ſich eine Menge Heuſchrecken um ſie, die Nachtigall flog heran, und im kurzem wetteiferten alle Nachtigallen mit einander zum Preiſe des Schöpfers.

Das Ohr des Königs ward aufgethan, und er vernahm den Geſang der Vögel, die Stimme der Heuſchrecken und aller Lebendigen, das Murmeln der Bäche, das Rauſchen der Haine, den Geſang des Morgenſterns, den entzückenden Klang der aufgehenden Sonne.—Verloren im hohen Einklange der Stimmen, die unaufhörlich und unermüdet den Schöpfer loben, verſtummte er und fand ſich in ſeinen Geſängen ſelbſt hinter der Heuſchrecke, die noch auf dem Saum ſeines Kleides girrte. Demüthig ergriff er die Harfe und ſang: "Lobet den Herrn, ihr, alle ſeine Geſchöpfe; lobe den Herrn auch du, mein Innerſtes, du, meine verſtummende Seele!"

Herder.

Grammatical Questions.

FRENCH.

1. State briefly the rules relating to the use of *du, des, de la, de l'.*
2. Give some examples referring to the general formation of the plural.
3. What is the plural of *bateau, trou, hôpital, cheval, bal?*
4. When is the obsolete form *ciels* used for *cieux*, and that of *oeils* for *yeux?* State also the difference, with respect to *meaning*, between *aïeuls* and *aïeux.*

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5. What are the plural forms of *amical, naval, loyal, partial, moral?*

6. Give the comparative and superlative degrees of *bon petit, mauvais.*

7. Write out the *Definite* and the *Imperfect Subjunctive* of the regular form of verbs, such as: *porter, remplir, devoir, vendre.*

8. Is the *d* of the root retained in *prendre, apprendre,* in the plural of the *Present Indicative,* as it is in the verbs *vendre, attendre?* Exemplify. Write out also the *Present Subjunctive, Definite,* and *Imperfect Subjunctive* of all these four verbs.

GERMAN.

1. Illustrate very briefly the characters of the *ancient* and of the *modern* form of declension in German.

2. Decline: guter Vater, der gute Vater, ein guter Vater. In like manner (with adjective gehorſam) decline: Sohn, Tochter, Kind.

3. Is the German adjective *declinable* when placed after its noun? Give some examples.

4. Write out the full termination of a verb, *e.g.,* reiten, finden, &c.

5. Form the *Imperfect* and *Past Participle* of arbeiten, reden, retten.

6. Of what gender are nouns in el, er, en, as a general rule?

7. Give the *Genitive Singular* and the *Dative Plural* of Engel, Eber, Degen.

8. Decline Nacht, Frau, Graf, Buch. What is meant in German by Umlaut?

SECOND YEAR STUDENTS.

GREEK.—*Professor MacDouall.*

I. Translate accurately and perspicuously these lines from the XIIth Book of the *Odysseia*:

"ἔνθα τοι οὐκέτ᾽ ἔπειτα διηνεκέως ἀγορεύσω,
ὁπποτέρη δή τοι ὁδὸς ἔσσεται, ἀλλὰ καὶ αὐτὸς
θυμῷ βουλεύειν· ἐρέω δέ τοι ἀμφοτέρωθεν.
"ἔνθεν μὲν γὰρ πέτραι ἐπηρεφέες, προτὶ δ᾽ αὐτὰς
κῦμα μέγα ῥοχθεῖ κυανώπιδος Ἀμφιτρίτης·
'Πλακτὰς' δή τοι τάς γε θεοὶ μάκαρες καλέουσιν.
τῇ μέν τ᾽ οὐδὲ ποτητὰ παρέρχεται, οὐδὲ πέλειαι
τρήρωνες ταί τ᾽ ἀμβροσίην Διὶ πατρὶ φέρουσιν,
ἀλλά τε καὶ τῶν αἰεὶ ἀφαιρεῖται λὶς πέτρη.
τῇ δ᾽ οὔ πω τις νηῦς φύγεν ἀνδρῶν, ἥ τις ἵκηται,
ἀλλά θ᾽ ὁμοῦ ἐνακάς τε νεῶν καὶ σώματα φωτῶν
κύμαθ᾽ ἁλὸς φορέουσι πυρός τ᾽ ὀλοοῖο θύελλαι.
"ἔνθεν δ᾽ αὖ δοιὼ σκοπέλω λεύσσοις ἄν, Ὀδυσσεῦ!
πλησίον ἀλλήλων, καί κεν διοϊστεύσειας.
τούτων δὲ σκοπέλων ὃ μὲν οὐρανὸν εὐρὺν ἱκάνει
ὀξείῃ κορυφῇ, νεφέλη δέ μιν ἀμφιβέβηκεν
κυανέη· τὸ μὲν οὔ ποτ᾽ ἐρωεῖ, οὐδέ ποτ᾽ αἴθρη
κείνου ἔχει κορυφὴν οὔτ᾽ ἐν θέρει οὔτ᾽ ἐν ὀπώρῃ.

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General Class Examination.

οὐ κατά κεν βαίη βροτὸς ἀνὴρ οὔτ' ἀναβαίη·
πέτρη γὰρ λίς ἐστι περιξέστῃ εἰκυῖα.
μέσσῳ δ' ἐν σκοπέλῳ ἐστὶ σπέος ἠεροειδές·
οὐδέ κεν ἐκ νηὸς γλάφυρῆς αἰζήϊος ἀνὴρ
τόξῳ ὀϊστεύσας κοῖλον σπέος εἰσαφίκοιτο.
ἔνθα δ' ἐνὶ Σκύλλη ναίει δεινὸν λελακυῖα.
μέσση μέν τε κατὰ σπείους κοίλοιο δέδυκεν,
ἔξω δ' ἔξ ἴσχει κεφαλὰς δεινοῖο βερέθρου·
αὐτοῦ δ' ἰχθυάᾳ, σκόπελον περιμαιμώωσα,
δελφῖνάς τε κύνας τε καὶ εἴ ποθι μεῖζον ἕλῃσιν
κῆτος, ἃ μυρία βόσκει ἀγάστονος Ἀμφιτρίτη.
τὴν οὔ πώ ποτε ναῦται ἀκήριοι εὐχετόωνται
παρφυγέειν ξὺν νηΐ, φέρει δέ τε κρατὶ ἑκάστῳ
φῶτ' ἐξαρπάξασα νεὸς κυανοπρώροιο.
τὸν δ' ἕτερον σκόπελον χθαμαλώτερον ὄψει, Ὀδυσσεῦ!
τῷ ἐν ἐρινεός ἐστι μέγας φύλλοισι τεθηλώς.
τῷ δ' ὕπο δῖα Χάρυβδις ἀναῤῥοιβδεῖ μέλαν ὕδωρ·
τρὶς μὲν γάρ τ' ἀνίησιν ἐπ' ἤματι, τρὶς δ' ἀναροιβδεῖ
δεινόν. μὴ σύ γε κεῖθι τύχοις, ὅτε ῥοιβδήσειεν!
οὐ γάρ κεν ῥύσαιτό σ' ὑπὲκ κακοῦ οὐδ' Ἐνοσίχθων.
ἀλλὰ μάλα Σκύλλης σκοπέλῳ πεπλημένος ὦκα
νῆα παρὲξ ἐλάᾳν, ἐπεὶ ἦ πολὺ φέρτερόν ἐστιν
ἓξ ἑτάρους ἐν νηῒ ποθήμεναι ἢ ἅμα πάντας."

II.—In very concise notes illustrate the scope of this passage,—trace the connexion of its parts and their relations to the whole,—and show the true bearing of both the whole and the parts upon the poetic geography of the *Odysseia*. You may advert to certain erroneous interpretations and inferences usually associated with the passage through the influence of conceptions—whether geographical or mythical—which became current in after times. You may likewise notice differences of reading, and comment upon such phrases, constructions, forms of words, or metrical peculiarities, as invite special remark.

LATIN.—*Examiner, Rev. Dr. Reichel.*

A.—1. Dixi equidem et dico: captes astutus ubique
Testamenta senum, neu, si vafer unus et alter
Insidiatorem praeroso fugerit hamo
Aut spem deponas aut artem illusus omittas.
Magna minorve foro si res certabitur olim,
Vivet uter locuples sine gnatis improbus, ultro
Qui meliorem audax vocet in jus, illius esto
Defensor: fama civem causaque priorem
Sperne, domi si gnatus erit fecundave coniux.
Quinte, puta, aut Publi—gaudent praenomine molles
Auriculae—tibi me virtus tua fecit amicum:
Jus anceps novi, causas defendere possum:
Eripiet quivis oculos citius mihi, quam te
Contemptum cassa nuce pauperet: haec mea cura est
Ne quid tu perdas, neu sis iocus. Ire domum atque
Pelliculam curare iube: fi cognitor ipse:

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General Class Examination.

Persta atque obdura, seu rubra canicula findet
Infantes statuas, seu pingui tentus omaso
Furius hibernas cana nive conspuet alpes.
Nonne vide—aliquis cubito stantem prope tangens
Inquiet—ut patiens, ut amicis aptus, ut acer ?
Plures adnabunt thunni et cetaria crescent.
Si cui praeterea validus malo filius in re
Praeclara sublatus aletur, ne manifestum
Caelibis obsequium nudet te, leniter in spem
Adrepe officiosus, ut et scribare secundus
Haeres et, si quis casus puerum egerit orco
In vacuum venias : perraro haec alea fallit.
Qui testamentum tradet tibi cumque legendum
Abnuere et tabulas a te removere memento,
Sic tamen, ut limis rapias, quid prima secundo
Cera velit versu : solus multisne cohaeres
Veloci percurre oculo. Plerumque recoctus
Scriba ex quinqueviro corvum deludet hiantem,
Captatorque dabit risus Nasica Corano.
Num furis ? an prudens ludis me obscura canendo ?
O Laertiade, quidquid dicam aut erit aut non ;
Divinare etenim magnus mihi donat Apollo.

2. Ceterum aestate qua sextum officii annum inchoabat, amplexus civitates trans Bodotriam sitas, quia motus universarum ultra gentium et infesta [hostilis exercitus] itinera timebantur, portus classe exploravit : quae ab Agricola primum adsumpta in partem virium sequebatur, egregia specie, cum simul terra simul mari bellum impelleretur, ac saepe iisdem castris pedes equesque et nauticus miles mixti copiis ac laetitia sua quisque facta, suos casus attollerent, ac modo silvarum ac montium profunda, modo tempestatum et fluctuum adversa, hinc terra et hostis, hinc victus oceanus militari iactantia compararentur. Britannos quoque, ut ex captivis audiebatur, visa classis obstupefaciebat, tanquam aperto maris sui secreto ultimum victis perfugium clauderetur. Ad manus et arma conversi Caledoniam incolentes populi, paratu magno, maiore fama, uti mos est de ignotis, oppugnare ultro castellum adorti, metum ut provocantes addiderant : regrediendumque citra Bodotriam et excedendum potius quam pellerentur ignavi specie prudentium admonebant, cum interim cognoscit hostis pluribus agminibus irrupturos. Ac ne superante numero et peritia locorum circumiretur, diviso et ipse in tres partes exercitu incessit.

B.—1. Translate the above passages accurately.

2. Write brief notes on anything in them which may require elucidation, noticing various readings, umbiguity of meaning, &c.

3. Distinguish between *ultro* and *sponte* : between *seu*, *aut*, and *vel* : between *et*, *ac* or *atque*, and *que* : between *iam* and *nunc* : between *quum* and *quando* : between *quoque* and *etiam* : between *verum* and *vero* : between *certe* and *certo* : between *deinde* and *deinceps*.

4. Distinguish between *lĭber* and *lĭber* · between *cānent* and *cănent* : between *quōque* and *quŏque*.

5. Give the meanings and derivations, when known, of the following words : *scutula*, *persulto*, *perstringo*, *ius* (two meanings), *faex*, *scopae*, *scobs*, *limus*, *caprea*, *elixus*, *pulmentum*, *vesica*, *assus*.

6. Distinguish between *cavere alicui* and *cavere aliquem* : *consulere alicui* and *consulere aliquem* : *convenire alicui* and *convenire aliquem* : *cupere aliquid* and *cupere alicui* : *foeneror ab aliquo* and *foeneror alicui*.

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7. What part of a legion was a *cohort?* Give the different divisions of the legion.

8. Draw a plan of a Roman camp, specifying the name of its gates, and give the most probable derivation of the name *decumana porta.*

To be translated into Latin prose :—

Henry, Prince of Wales, eldest son of the King of Great Britain, happy in the hopes conceived of him, and now happy in his memory, died on the sixth of November, in the year of our Lord one thousand six hundred and twelve, to the extreme concern and regret of the whole kingdom, being a youth who had neither offended nor satiated the minds of men. He had, by the excellence of his disposition, excited high expectations among great numbers of all ranks: nor had through the shortness of his life disappointed them. One capital circumstance added to these was the esteem in which he was commonly held, of being firm to the cause of religion; and men of the best judgment were fully persuaded, that his life was a great support and security to his father from the danger of conspiracies: an evil against which our age has scarce found a remedy: so that the people's love of religion and of the king overflowed to the prince: and this consideration deservedly heightened the sense of the loss of him. His person was strong and erect: his stature of a middle size: his limbs well made: his gait and deportment majestic: his face long and inclining to leanness: his habit of body full: his look grave, and the motion of his eyes rather composed than spirited.—LORD BACON.

MODERN LANGUAGES.—*Examiner, Dr. Frädersdorff.*

Translate into English :—

Le *Siècle de Louis XIV.* est la plus parfaite des œuvres historiques de Voltaire. Plein d'une admiration sincère pour cette brillante époque, il l'étudie avec amour et la raconte avec gravité. La pensée philosophique qui le dirigeait était la même qui avait inspiré, l'*Essai sur les mœurs.* "Ce n'est point seulement la vie de ce prince que j'écris, ce ne sont point les annales de son règne, c'est plutôt l'histoire de l'esprit humain, puisée dans le siècle le plus glorieux à l'esprit humain." Il *rassembla longtemps les matériaux* de ce grand travail, longtemps il s'occupa à *donner chaque jour quelque coup de pinceau à ce beau siècle de Louis XIV. dont* il voulait *être le peintre et non l'historien.* On regrette seulement qu'un plan mal conçu ait divise les différentes parties d'un tableau qui devait surtout frapper par son ensemble. Voltaire expose d'abord les événements politiques; puis il rapporte les anecdotes relatives à la vie privée du monarque; il examine ensuite les questions de finances, l'état des lettres et des arts, et finit par les affaires ecclésiastiques. "Puisque tout s'enchaîne dans les choses humaines," dit Gibbon, "et que les unes ne sont souvent que la cause ou la conséquence des autres, pourquoi les séparer dans l'histoire?" L'historien anglais remarque ensuite avec justesse que la première partie de l'ouvrage est beaucoup moins intéressante que la seconde. Les lettres, les arts et les mœurs offraient à l'écrivain une matière presque entièrement neuve, tandis que les sièges et les batailles, traités déjà dans une foule de récits, ne permettaient à Voltaire d'autre supériorité que celle du style et de la précision.

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General Class Examination.

Translate into French or German :—

My children, the offspring of temperance, as they were educated without softness, so they were at once well-formed and healthy; my sons hardy and active, my daughters beautiful and blooming. When I stood in the midst of the little circle, which promised to be the supports of my declining age, I could not avoid repeating the famous story of Count Abensberg, who, in Henry the Second's progress through Germany, while other courtiers came with their treasures, brought his thirty-two children, and presented them to his sovereign, as the most valuable offering he had to bestow. In this manner, though I had but six, I considered them as a very valuable present made to my country, and consequently looked upon it as my debtor.

Translate into English :—

Endlich erſcheint der gefürchtete Morgen; aber ein undurchdringlicher Nebel, der über das ganze Schlachtfeld verbreitet liegt, verzögerte den Angriff noch bis zur Mittagsſtunde. Vor der Fronte kniend hält der König ſeine Andacht; die ganze Armee, auf die Knie hingeſtürzt, ſtimmt zu gleicher Zeit ein rührendes Lied an, und die Feldmuſik begleitet den Geſang. Dann ſteigt der König zu Pferde, und blos mit einem ledernen Koller und einem Tuchrock bekleidet (eine vormals empfangene Wunde erlaubte ihm nicht mehr, den Harniſch zu tragen) durchreitet er die Glieder, den Muth der Truppen zu einer frohen Zuverſicht zu entflammen, die ſein eigner ahnungsvoller Buſen verleugnet. Gott mit uns, war das Wort der Schweden; das der Kaiſerlichen: Jeſus Maria. Gegen eilf Uhr fängt der Nebel an, ſich zu zertheilen, und der Feind wird ſichtbar. Zugleich ſieht man Lützen in Flammen ſtehen, auf Befehl des Herzogs in Brand geſteckt, damit er von dieſer Seite nicht überflügelt würde. Jetzt tönt die Loſung, die Reiterei ſprengt gegen den Feind, und das Fußvolk iſt im Anmarſch gegen die Gräben.

Das Schloß am Meere.

Haſt du das Schloß geſehen,
Das hohe Schloß am Meer?
Golden und roſig wehen
Die Wolken drüber her.

Es möchte ſich niederneigen
In die ſpiegelklare Fluth;
Es möchte ſtreben und ſteigen
In der Abendwolken Gluth.—

„Wohl hab' ich es geſehen
Das hohe Schloß am Meer,
Und den Mond darüber ſtehen
Und den Nebel weit umher.“—

Der Wind und des Meeres Wallen
Gaben ſo friſchen Klang?
Vernahmſt du aus hohen Hallen
Saiten und Feſtgeſang?

„Die Winde, die Wogen alle
Lagen in tiefer Ruh,
Einem Klaglied aus der Halle
Hört ich mit Thränen zu.“—

Saheſt du oben gehen
Den König und ſein Gemahl?
Der rothen Mäntel Wehen?
Der goldnen Kronen Strahl?

Führten ſie nicht mit Wonne
Eine ſchöne Jungfrau dar,
Herrlich, wie eine Sonne,
Strahlend im goldnen Haar?

„Wohl ſah ich die Eltern beide
Ohne der Kronen Licht,
Im ſchwarzen Trauerkleide;
Die Jungfrau ſah ich nicht."

Uhland.

Grammatical Questions.

FRENCH.

1. How does a difference of gender affect the *meaning* of the following words: *capre, garde, mémoire, solde, somme ?*

2. Give the tenses and persons in which the final radical *l* or *t* is doubled in verbs *appeler, jeter, niveler, étinceler.*

3. May the *accent grave* on the *penultima* in certain tenses and persons of verbs, such as *mener, achever, lever, promener,* &c., be referred to any rule analogous to that requiring the doubling of *l* or *t* in the preceding case? Exemplify.

4. When, and for what special object, is the insertion of a supplementary *e* required after the final *g* in verbs *mang-er, charg-er, abreg-er,* &c.?

5. May the accidental use of the *cédille* in verbs *suc-er, announc-er, avanc-er,* &c., be considered as analogous in its effect, compared with the supplementary *e* in verbs with the final radical *g*? Before which vowels is the *cédille* employed under *c*? Give examples.

6. What is the difference, with respect to meaning, conveyed by verbs expressing *fear*, when followed by *ne* or by *ne pas* in the subordinate clause? Exemplify the rule.

7. If replacing *si* (*if*) by *que* in the co-ordinate clause, should the latter conjunction (*que*) be followed by the *Indicative* (as after *si*) or by the *Subjunctive ?* Form some phrases illustrating this question.

8. Write out the Present and the Imperfect Subjunctive of the verbs *aller, mourir, s'asseoir, valoir, vouloir.*

GERMAN.

1. When may the e be dropped in the last syllable of the genitive and dative singular of the *strong* declension?

2. Decline der hohe Baum, dieſes ſchöne Schloß, viele neue Bücher.

3. German adjectives have two forms of declension—when are they respectively used? State the case-endings of each form.

4. Define what is meant in German by the *strong* and the *weak* declension.

5. Decline ich, du, er, ſie, es.

6. Give the second person singular of all the simple tenses in the indicative and subjunctive moods of loben, both active and passive.

7. Give the first person singular of the imperfect, indicative, and sub-

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junctive, and the past participle, of finden, ſpinnen, bitten, eſſen, reiten, and bleiben.

8. What cases are governed by the following prepositions: von, mit, ohne, wegen, nach?

9. Of what gender are substantives ending in heit and ſchaft? Mention any other terminations of the same gender, with exceptions.

10. Of what gender are *primary derivative substantives*, as a *general* rule, and how are they formed from verbs?

Logic.—*Examiner, Rev. Dr. M'Cosh.*

1. Define "discursive thought." What are the various exercises of discursive thought? Is there discursive thought in the abstract notion? in the general notion? if so, what is it? Is there discursive thought in the singular concrete notion? Can this notion have a place in Logic? Give reasons with your answers.

2. What can Logic do in the way of making our notions clearer, more distinct, and adequate? What particular processes does it recommend for this purpose? Show precisely how these processes are fitted to accomplish this end, more especially as to abstract and general notions.

3. What are the laws of thought involved in the use of signs? In the use of signs, do we think of all that is contained in the notion? What incidental evils arise from this? How may these evils be remedied?

4. "Man is capable of living in a greater variety of regions and climates than any of the lower animals." What are the terms in this proposition? What sort of terms are they? Interpret the proposition both as to its extension and comprehension. Convert the proposition. What is its subaltern? what its contrary? and what its contradictory?

5. The barbarians of the isle of Melita, when they saw the venomous beast hang on Paul's hand, "said among themselves, 'No doubt this man is a murderer, whom, though he hath escaped the sea, yet vengeance suffereth not to live.' And he shook off the beast into the fire, and felt no harm. Howbeit they looked when he should have swollen, or fallen down dead; but after they had looked a great while, and saw no harm to him, they changed their minds, and said he was a god." Put the reasoning that passed through the minds of these barbarians in proper form, and show what premises are necessary in order to its validity.

6. "One of us two is not speaking the truth: I am speaking the truth." What is the conclusion to be drawn? Put the reasoning in the form of a disjunctive, and designate the parts of the argument. Reduce the disjunctive to the categorical form.

7. (*a*) Examine the following: Slavery cannot be condemned by God, as it has a place in the Old Testament, and what has a place in the Old Testament cannot be condemned by God. Or, (*b*) examine the doctrine that reasoning is an inference from particulars, and that we do not need to frame a general proposition or major premiss.

8. A writer is arguing against the existence of intuitive truth, and he proves that we cannot discover any truth without the knowledge and experience of objects. Show what is the fallacy into which he has fallen, and in doing so, define that fallacy, and explain its nature.

9. What is the nature of the joint dogmatic and deductive method? Why is it called dogmatic? What sort of assumptions are we entitled to make? Why is it called deductive? Where do we get our majors in the deduction? In what sciences is it available? Why has it failed in other sciences in which it has been used?

10. Examine the following statement of Mr. Mill: "What follows from a definition follows in reality from an implied assumption that there exists

a real thing conformable thereto. This assumption, in the case of the definitions of geometry, is false. There exist no real things exactly conformable to the definitions. There exist no points without magnitude; no lines without breadth, nor perfectly straight; no circles, with all their radii exactly equal; nor squares, with all their angles, perfectly right."

11. Show how experiential evidence is called moral, and as you do so, define "evidence," and "experiential" and "moral." Show how man may be responsible for his belief.

12. What is the argument from analogy? What is necessary to make an argument from analogy conclusive? In particular, under what conditions may we reason from analogy in natural science? What fallacy would we fall into if, in interpreting the parable of the Importunate Widow, we should infer that God is in all respects like the unjust judge?

13. In rivers running north in European and Asiatic Russia, it is found that the right or east bank is usually steeper and higher than the left, evidently owing to the water pressing more on the east bank. The cause of this phenomenon is supposed to be the velocity eastward acquired in the south by reason of the eastward rotation of the earth being retained as it goes north, and being greater than the velocity eastward of the right bank of the stream in the northern regions. Show by what canon of induction you would justify this, and in doing so, show that it applies. Indicate how the reasoning involved could be stated in syllogistic form.

14. Show how induction and deduction may be combined. What is meant by verification of inductions? Give examples from physical or mental science.

N.B.—Those seeking *Honors* are expected to answer the above. Others are expected to answer *twelve*. Those aiming at mere *Pass* may substitute any number of the following for a like number of the above :—

(*a*) What is logical definition? What are the rules of definition? How far are definitions to be exacted?

(*b*) In what ways may propositions be converted? Convert the following: "Reptiles are cold-blooded;" "food is necessary to life."

(*c*) Examine the following by the rules of logic: "All wise legislators suit their laws to the genius of their nation; Solon did this; therefore he was a wise legislator."

(*d*) Examine the following: "He who has a fever is unfit to travel: this man is unfit to travel: therefore he has a fever."

(*e*) Define "fallacy." How does Archbishop Whately divide fallacies? Define *fallacia accidentis*. Explain what is meant by "reasoning in a circle."

NATURAL PHILOSOPHY.—*Examiner, Dr. Stevelly.*

PHYSICS.

1. Define the terms, force, statics, dynamics, and equilibrium. Show how forces are measured numerically, and represented geometrically; and state and explain the three conditions necessary to determine or identify a force.

2. State and explain the distinction between static and dynamic force; and state and prove the condition which determines the equilibrium of any number of statical forces applied simultaneously to the same point of a body.

3. Find the single resultant of any number of parallel forces applied at several points of a rigid body, when they have a single resultant; show that if the points of application of these forces remain unchanged, but

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the directions of all the component forces be simultaneously and equally changed so as to preserve their parallelism, the resultant passes through one point unchanged in its position. Name that point. State the case in which such parallel forces have no single equivalent, and no such point can be assigned.

4. Find the velocity acquired by a heavy body in falling from the top to the bottom of a perfectly smooth inclined plane, or down a series of such planes. Show that the velocity with which a heavy particle would issue from the lower orifice of a smooth curved tube of any form, after having descended from the upper orifice, is unvaried in whatever position the tube be placed, the positions of the upper and lower orifices being kept invariable.

5. Enunciate the three laws of motion, and give a short analysis of each of them.

6. Show that the pressure of a heavy fluid on the several points of the sides of a vessel which contains it, is the same at the several parts of the same horizontal plane, whatever be the shape of the rest of the vessel, provided it be filled to the same vertical height above that plane. State and briefly explain the hydrostatic paradox.

7. Show that the heights of the free surfaces of two immiscible heavy fluids above their common surface in two communicating branches of a vessel which contains them, are reciprocally proportional to the densities of these fluids.

8. State as many sources of electrical excitement as you can remember, and explain the action and use of the common electrical machine.

9. Give some examples of the effects of statical electricity. Explain induction, and the two kinds of electrical discharge. State the leading distinctions between dynamical and statical electricity, and enumerate the leading classes of effects of dynamic electricity.

10. Explain the terms, dip, declination, and variation of the magnetic needle. Is each constant, or does it vary (1) at a given place, (2) from time to time? Explain "intensity," and how its amount is determined at any place and time.

11. What is the relation between the angles of incidence and reflexion; also between the angles of incidence and refraction? Give an accurate definition of each of these angles.

12. Explain the astronomical terms, Horizon, Equator, Meridian, Ecliptic; and explain what is meant by the perihelion and aphelion distances of one of the planets; also the perigee and apogee of the Moon's orbit.

THIRD YEAR STUDENTS.

LATIN.—*Examiner, Dr. Reichel.*

[HONOR CLASS.]

Translate the following extract into Latin prose :—

A law there is mentioned among the Greeks, whereof Pittacus is reported to have been author; and by that law it was agreed, that he which being overcome with drink did then strike any man, should suffer punishment double as much as if he had done the same being sober. No man could ever have thought this reasonable, that had intended thereby only to punish the injury committed according to the gravity of the fact: for who knoweth not that harm advisedly done is naturally less pardonable,

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and therefore worthy of sharper punishment? But forasmuch as none did so usually this way offend as men in that case, which they wittingly fell into, even because they would be so much the more freely outrageous; it was for their public good, where such disorder was grown, to frame a positive law for remedy thereof accordingly. To this appertain those known laws of making laws, as that law-makers must have an eye to that place where, and to the men amongst whom: that one kind of laws cannot serve for all kind of regiment: that where the multitude beareth sway, laws that shall tend to the preservation of that state must make common smaller offices to go by lot, for fear of strife and division likely to arise: by reason that ordinary qualities sufficing for discharge of such offices, they could not but by many be desired, and so with danger contended for, and not missed without grudge and discontentment: whereas at an uncertain lot, none can find themselves grieved, on whom soever it lighteth: contrariwise the greatest, whereof but few are capable, to pass by popular election, that neither the people may envy such as have those honours, inasmuch as they themselves bestow them, and that the chiefest may be kindled with desire to exercise all parts of rare and beneficial virtue, knowing they shall not lose their labour by growing in fame and estimation among the people.—HOOKER.

Translate the following into Latin elegiacs:—

Gods of my country by whose advice the foreign fleet
  Came hither and built an Euboean city,
Avert this pest from our shore
  If you founded the city with good omens!
And you, innocent shades, whom poison
  Killed before your days,
Bring hither your avenging torches, and with fire
  Torment the causes of your death!
And you, O muses, the poets' deities,
  Not to be profaned by my songs,
Spare, if I have hurt your ears for the first time,
  I have been provoked to take arms!

QUESTIONS.

A.—1. By what means was the development of Roman law principally carried on (α) in the earlier, (β) in the later, Commonwealth, (γ) under the Empire?

2. What was the *edictum Praetoris perpetuum?* and when did it become finally fixed?

3. Define *Agnatic* and *Cognatic* relationship. What is the foundation of the former?

4. What was the original extent of the Patria Potestas, and what was the utmost relaxation of it in Roman law?

5. Specify the three methods of marriage anciently used at Rome. What was the reason of their going subsequently into almost entire disuse?

6. When did *tutela* terminate in the case of males, and how was this defect supplied?

7. What is the proper Roman definition of an inheritance?

8. What was the original object of wills at Rome?

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9. What were the original methods of making wills at Rome, among (α) patricians, (β) plebeians? and what method came subsequently into general use?

10. In case of intestacy, how did inheritances go?

11. The new mode of making wills differed from the old one in three important points?

12. When were legacies first made legal?

B.—1. Specify the chief particulars of the legislation (α) of Tib. Gracchus, (β) of Caius Gracchus.

2. Specify the laws intended to be carried by M. Livius Drusus in his tribunate.

3. Which of these laws did he actually carry; and on what *legal* pretence were they, after his death, treated as null and void?

4. What was the *lex Varia de majestate?*

5. Give an exact account of what is known of the *lex Servilia* (*Caepionis*) and the *lex Servilia* (*Glauciae*).

6. Give a brief sketch of the internal history of Rome between the tribuneship of C. Gracchus and the dictatorship of Sulla, with dates.

7. Give an accurate statement of the constitution established by Sulla.

HISTORY AND ENGLISH LITERATURE.—*Examiner, Professor Craik.*

ENGLISH LITERATURE.

1. Mention the most important of the facts bearing upon the history of the English Language, or of English Literature, by which each century has been marked, from the eleventh to the eighteenth inclusive.

2. Sketch the biography of Chaucer, and notice the state of literature in Italy and in France, as well as in England, when he began to write.

3. Sketch the biography of Spenser.

4. Compare, in respect of spirit and manner, the poetry of Chaucer with that of Spenser.

5. Write a short criticism on Shakespeare's "Julius Cæsar."

6. Sketch the course of the action in any other of Shakespeare's plays.

7. Compare the poetical manner of Pope with that of Dryden.

8. Explain the nature of verse, and the sources of the pleasure which it gives.

9. Enumerate the principal Poetical Writers of the present century, mentioning at least one of the works of each.

10. Give an account of any work in Prose that you have read by a living author.

11. Explain what Aristotle appears to mean by his doctrine that all Poetry and all Art is Imitation.

12. State how you meet and dispose of the objections that have been taken to some passages in Aristotle's *Poetic* as being inconsistent with other passages.

HISTORY.

1. Explain the Metonic Cycle, the Cycle of the Sun, the Cycle of the Indiction, and the Julian Cycle or Period.

2. Give an account of what are called the Old and the New Styles.

3. State what appears to be the true history of the formation of the English Parliament.

4. Explain the conflicting hereditary claims to the crown of the Houses of York and of Lancaster.

Appendix, No. 8.

General Class Examination.

5. Recount the succession of Administrations in the reign of Charles II.
6. Give an account of either the Popish Plot or the Rye-House Plot.
7. Give an account of any one of the following personages:—Thomas à Becket; Cardinal Wolsey; the first Villiers Duke of Buckingham; the Earl of Strafford; Lord Stafford; Shaftesbury; Danby; Lord Russell; Algernon Sidney; Monmouth.
8. Give an account of the Petition of Right.
9. Give an account of the Habeas Corpus Act.
10. Give an account of the *New Science* of Vico and his followers.
11. Give the history of the doctrine of the Cycle of Forms of Government.
12. State what appear to be the chief recommendations of the study of History as a mental gymnastic.
13. Sketch the course of the principal events in any one of the Nine Periods (except the First, the Second, and the Ninth) into which the History of the World was divided in the Lectures.

MODERN LANGUAGES.—*Examiner, Dr. Frädersdorff.*

[HONOR CLASSES.]

Translate into English :—

C'est surtout par Rome que la Gaule connut la Grèce. Quoique les colonies helléniques viennent avant Rome la visiter. elles ne font qu'en toucher le bord. Rhodes établit un comptoir à l'embouchure du Rhône. Marseille elle-même y demeure pendant six siècles isolée dans son élégante civilisation. Elle introduit la Grèce en Gaule; elle ne transforme pas les Gaulois en Grecs. "Marseille," dit un géographe latin, contemporain de l'empereur Claude, "est une ville d'origine phocéenne, placée entre des nations sauvages maintenant pacifiées, mais dont elle diffère beaucoup. Il est merveilleux avec quelle facilité elle a conquis sa place parmi elles, et combien elle a conservé fidèlement jusqu'à ce jour sa propre civilisation." La Grèce ignorait profondément cette Gaule, où ses propres enfants s'étaient depuis longtemps établis. Diodore de Sicile, qui écrivait après César, parle des régions transalpines comme d'un pays où tous les fleuves sont glacés.

La civilisation grecque fut donc circonscrite ici dans un étroit espace. Elle eut sa vie à part, jusqu'à ce que cette contrée fût devenue entièrement romaine. Alors seulement nous voyons les sciences et les arts grecs se répandre dans les provinces gauloises, comme ils avaient prévalu à Rome. Du temps de César, les Gaulois se servaient de caractères hellêniques pour écrire leur propre langue. Sous les Antonins, Lucien mentionne un philosophe gaulois, c'est-à-dire probablement un druide, qui était instruit dans les lettres de la Grèce et parlait très bien la langue grecque. Les médailles gauloises frappées avant la conquête sont d'un travail grossier: après cette époque, la Gaule donne des sculpteurs à Rome. Ce fut de Clermont qu'on fit venir l'artiste chargé d'exécuter la statue colossale de Néron. Au IV^e siècle le grec était aussi usuel à Arles que le latin. Le peuple chantait indifféremment l'office religieux dans ces deux langues.

Hyppolyte. Je ne la cherchais pas;
C'est vous qui sur ces bords conduisîtes ses pas;
Vous daignâtes, seigneur, aux rives de Trézène
Confier en partant Aricie et la reine:

Appendix, No. 8.

General Class Examination.

Je fus même chargé du soin de les garder.
Mais quels soins désormais peuvent me retarder?
Assez dans les forêts mon oisive jeunesse
Sur de vils ennemis a montré son adresse:
Ne pourrai-je, en fuyant un indigne repos,
D'un sang plus glorieux teindre mes javelots?
Vous n'aviez pas encore atteint l'âge où je touche,
Déjà plus d'un tyran, plus d'un monstre farouche,
Avait de votre bras senti la pesanteur;
Déjà, de l'insolence heureux persécuteur,
Vous aviez des deux mers assuré les rivages;
Le libre voyageur ne craignait plus d'outrages;
Hercule, respirant sur le bruit de vos coups,
Déjà de son travail se reposait sur vous:
Et moi, fils inconnu d'un si glorieux père,
Je suis même encor loin des traces de ma mère!
Souffrez que mon courage ose enfin s'occuper:
Souffrez, si quelque monstre a pu vous échapper,
Que j'apporte à vos pieds sa dépouille honorable,
Ou que d'un beau trépas la mémoire durable,
Éternisant des jours si noblement finis,
Prouve à tout l'avenir que j'étais votre fils.

Translate into French or German:—

Man has been thrown naked upon the earth; weak, incapable of flying like a bird, of running like a stag, of creeping like a serpent; without means of defence, in the midst of terrible enemies, armed with claws and fangs; without the means of braving the inclemency of the seasons, in the midst of animals covered with wool, scales, or fur; without shelter, when every one has its den, its burrow, its nest, its shell; without arms, when all are armed around him and against him. Well! he has asked of the lion his cave for a dwelling, and the lion has retired before his glance; he has spoiled the bear of his fur, and it was his first clothing; he has torn his horn from the bull, and formed it into his first cup.

Translate into English:—

Das Intereſſe, welches die Geſchichte des peloponneſiſchen-Krieges hatte, muß man jeder neuern Geſchichte, die man für die Neueren ſchreibt, zu geben ſuchen. Das eben iſt die Aufgabe, daß man ſeine Materialien ſo wählt und ſtellt, daß ſie des Schmuckes nicht brauchen, um zu intereſſiren, Wir Neuern haben ein Intereſſe in unſerer Gewalt, das kein Grieche und kein Römer gekannt hat, und dem das vaterländiſche Intereſſe bei weitem nicht beikommt. Das letzte iſt überhaupt nur für unreife Nationen wichtig, für die Jugend der Welt. Ein ganz anderes iſt es, jede merkwürdige Begebenheit, die mit Menſchen vorging, den Menſchen wichtig darzuſtellen. Es iſt ein armſeliges, kleinliches Ideal, für eine Nation zu ſchreiben: einem philoſophiſchen Geiſt iſt dieſe Gränze durchaus unerträglich.

Schiller.

Glaube.

Mit dem Vogel ſind geflogen
Seine Kinder über's Meer.
Droben ward der Himmel trüber;

Drunten brauſ'ten Sturmeswogen;
Und die Kinder klagten ſehr:
„Ach! wie kommen wir hinüber?
Nirgend will ein Land uns winken,
Und die müden Schwingen ſinken!"—
Aber ihre Mutter ſagt:
„Kinder, bleibet unverzagt!
Fühlt ihr nicht im tiefſten Innen
Unauf haltſam einen Zug,
Neuen Fruhling zu gewinnen?
Auf! In jenem iſt kein Trug,
Der die Sehnſucht hat gegeben;
Er wird uns hinüberheben
Und euch tröſten balde, balde,
In dem jungbelaubten Walde."

Fröhlich.

NATURAL PHILOSOPHY.—*Examiner, Dr. Stevelly.*

[HONOR PAPER.]

1. If you divide the base (BC) of any triangle (ABC) into two parts by a point (D) so that the parts shall bear to each other the ratio of m to n, and apply at the vertex (A) two forces simultaneously in the directions of the sides (AB and AC) and bearing to each other respectively the ratio of these sides, each multiplied by the number expressing the ratio of the alternate segment of the base ($AB \times n$ and $AC \times m$). Prove that a force applied along with those at the vertex in the direction of the line which joins the point of section with the vertex (DA) and bearing to either of the other forces the proportion of the joining line multiplied by the sum of the numbers which express the ratio of its segment, to the representative of the force with which you compare it $AD\ (m+n)$ to ($AB \times n$ or to $AC \times m$) will equilibrate with them.

2. Prove that if you represent each of any number of forces applied together at the same point (A) by lines drawn in the direction and proportion of each of these forces, and at the extremities of each of these lines you place the centres of gravities of bodies having equal masses, the equivalent of all these forces will be represented by a line whose direction coincides with the line which joins the point of application of the forces with the centre of gravity of all these equal masses, and whose length is equal to the length of that joining line multiplied by the number (n) of the component forces.

3. A uniform rectangular bar whose weight is W, has two weights P and Q attached to the middle points of its ends, the length of the bar being l; at what distance from the force P must a fulcrum (say a knife-edge) be placed so that these weights shall balance in any position of the bar?

4. Show that any number of couples, applied simultaneously to the same rigid body, can be reduced to a single equivalent couple, and show how the axis of that equivalent couple is determined.

5. Define the centre of oscillation of a heavy pendulous mass; show that any heavy mass suspended by any axis inflexibly connected with it, but not passing through its centre of gravity, has a centre of oscillation: and show that if that same heavy mass were suspended by a parallel axis passing through that centre of oscillation it would be a pendulum of the

same length: in other words, the centres of suspension and of oscillation of the same heavy mass are convertible.

6. Enunciate each of Kepler's three laws of planetary motion; and show that if an inert particle in motion be continually drawn laterally towards a fixed point, the radius vector or line joining the moving particle with that fixed point will sweep over areas proportional to the times of motion.

7. If each of the planets moved in an exact circular orbit round the Sun at rest in their common centre, show by Kepler's third law that the accelerating force of gravity of the Sun, exerted on any two of them, would be proportional to the inverse squares of their distances from the Sun.

8. Show how from the observed altitude of a heavenly body taken at a place whose latitude is known, and at a given instant of time as shown by a well-regulated sidereal clock, the declination and right ascension of that object can be calculated.

9. Into a vessel I pour three inches of mercury, specific gravity 13·575; over that I pour fifteen inches deep of distilled water; over that four inches of olive oil, specific gravity 0·915; over that six inches of commercial spirit of wine, specific gravity 0·835; and leave the vessel above open to the pressure of the atmosphere, the barometer standing at 30 inches: find the formula which expresses the accumulated pressure in lbs. avoirdupois which is sustained by one square inch of the sides or bottom of the containing vessel, the centre of gravity of which square inch is three inches beneath the upper surface of the layer of mercury. (Do not go through the arithmetic computation.)

10. Assuming the law of Dalton and Gay-Lussac as corrected by Regnault to be that air or gas under a constant pressure expands by being heated to 212° Fahrenheit or 100° centigrade by the 0·3664 part of the volume it had at 32° Fahrenheit, or 0° centigrade; deduce the formula by which may be calculated the increase of elastic force which any portion of air prevented from expanding will gain by being heated θ degrees above 32° Fahrenheit.

11. Explain the method by which Foucault determined the velocity with which light traverses air or any other transparent gas or liquid; write down the formula which he used for calculating that velocity from the facts observed during the experiment, and show how that formula is deduced.

12. Deduce the formula which connects the distances of a radient point placed in front of a spherical reflector, and its conjugate focus, from the centre of the surface, and the radius of the surface, and show how that formula enables you to trace the relative positions of these points, in the several positions in which the radient may be placed relatively to the reflecting surface.

CIVIL ENGINEERING.—FIRST YEAR STUDENTS.

GEOMETRICAL DRAWING AND OFFICE WORK.—*Examiner, Professor James Thomson.*

The examination comprised questions in descriptive geometry, orthographic and isometrical projection, and perspective, together with a scrutiny of drawings executed during the Session.

Appendix, No. 8.

General Class Examination.

SECOND YEAR STUDENTS.

CIVIL ENGINEERING.

1. In the ordinary Y theodolite, what is the essential condition to be brought about in the adjustment of the line of collimation?

2. Show that in Gravatt's level there is no exact height in the diaphragm aperture, or image field, at which the horizontal wire ought necessarily to be adjusted, and explain the bearing of this on Gravatt's rules for the adjustment of his instrument.

3. In Butler Williams' Practical Geodesy, in the article on Adjustments of the Theodolite, it is stated that if, on moving the eye from side to side while looking through the instrument at a distant object, parallax be found to occur, "*the correction of it consists in drawing out the tube of the eye-piece a little more or less, until the requisite stability of the image takes place.*" Explain the error of this statement, and show the true mode of making the correction.

4. Of the corrections for parallax, and for distinct vision of the diaphragm wires, which is it that requires to be frequently made during a day's field-work, and which not, and why?

5. Explain the division of a prismoid into parts, which is adopted as the basis of Bidder's Table of Earth-work.

6. Give the rule for finding the cubic content of a prismoid, which is used as the basis of Sir John Macneill's Tables of Earth-work.

7. In respect to computations of quantities of earth-work in railway cuttings and embankments, give a sketch of the reasons assigned in the lectures in favour of taking half the sum of each adjacent pair of end cross-sectional areas for a proper average area to be multiplied by the length between them, rather than using any prismoidal formula which would imply the supposition of the middle cross-sectional area of the block of earth-work comprised between the two end areas where levels have been actually taken, being usually less than half the sum of those two end areas.

8. When the course of a railway requires to change from a straight line to a circular curve, why should the change be effected gradually by a short portion with curvature, increasing gradually from nothing to that of the required circular curve, instead of the straight line being made to meet the circle directly as a tangent?

9. What is the use of the "*cant*" of the rails in a curve, or the "*superelevation of the outer rail?*"

10. Indicate the chief steps of a method for easing the transition from a straight line of a railway into a circular curve of given radius.

11. The configuration of the surface of land, and the positions of houses, fences, &c., on it, may be specified or made known either by a map, accompanied by a set of vertical sections, or by a contour map. Explain why the latter method presents the information usually required, as to configuration, levels, &c., in a form much more readily available, and gives a much better idea of the features of the ground.

12. For conducting contour surveys of tracts of land of moderate extent —limited, for instance, to 10 or 12 chains in length, and with the contours not more than four feet apart in height,—explain briefly two modes of procedure:—one by marks on the ground for the several contours, and the other the instantaneous method without contour marks. State which of the two requires the greater number of skilled surveyors for its performance, and give any further particulars you can bearing on the relative advantages or disadvantages of the two methods.

Appendix, No. 8.

General Class Examination.

13. Describe the process called "*dropping the levels*" down shafts of tunnels.

14. Explain briefly the most improved method used and described by Simms for ranging the line of a tunnel underground; but show reasons why the use of an observatory is not to be recommended in general.

15. Give information as to Granite, Syenite, Gneiss, Basalt, and Trachite, as building stones.

16. What kinds of stones are the well-known Craigleith stone and Herm stone?

17. Give information as to the nature of Portland stone, Bath stone, and Caen stone, and their use as building stones, and as to the geological period or group of fossiliferous strata to which they belong.

18. Distinguish between slaty cleavage and the laminar structure of stratification.

19. Name the greatest and most important slate quarries in the United Kingdom, mentioning their locality.

20. Describe the principal kinds of bond used in brickwork.

21. Distinguish between the hardening of roche lime mortar in the wall of a house, and the hardening of hydraulic mortar or cement in a wet place.

22. What are the chief distinctions between coniferous and non-coniferous trees, in respect to the timber supplied by them?

23. What are the best distinguishing characteristics by which to subdivide, for classification, the numerous timbers of non-coniferous exogenous trees?

OFFICE AND FIELD WORK.

1. Compute the area, in square links, of the principal triangle shown in the accompanying extract from a field-book.*

2. Using the result of the foregoing exercise, compute the area in acres, roods, and perches, of the entire plot of land shown surveyed in the same diagram.

3. Check the accuracy of the survey and of your previous calculation of the area of the principal triangle, by computing the areas of the two triangles into which the principal one is divided by the split line.

4. Compute the offset areas shown surveyed in the accompanying field-notes.*

5. Describe briefly the method (which was put in practice in the field in the present Session) for setting out a railway curve of given radius, touching two given straight lines, when the point of intersection of those two straight lines is accessible.

6. Mention some of the other methods which are valuable, or have been much used, for setting out railway curves; and, in particular, give a brief outline of Professor Rankine's method of procedure by a transversal.

7. Explain how to set out the *half breadths* for a railway cutting in sidelong ground.

8. Reduce 324 feet 6 inches to links, finding the result true to the nearest link.

9. Find how many square yards and how many square feet there are in a statute acre.

10. Show how many bricks of ordinary size would be required to build a cubic yard of brickwork;—also, how many to build a perch (Irish) of brickwork;—also, how many to build the standard rod (English) of brickwork.

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* Furnished to Students at the Examination, but not printed in Calendar.

11. Reduce one perch (Irish) of masonry to cubic feet.

12. Make out an example of a level field-book, containing at least seven fore-sights, and calculate the reduced levels, referring them to an assumed datum; and show how the calculations ought to be checked.

13. Give the reading of the horizontal limb of the theodolite before you.

Appendix, No. 8. General Class Examination.

Third Year Students.

Civil and Mechanical Engineering, and Office and Field Work.—*Examiner, Professor Thomson.*

These two examinations comprised questions in ordinary surveying and engineering geodesy, oblique bridges, tunnels, architecture, strength of materials, and foundry work.

Natural Philosophy Applied.—*Examiner, Dr. Stevelly.*

1. A uniform rectangular bar, whose length is l, and weight is W, has two weights, P and Q, attached to the middle points of its ends; at what distance from the weight P must a fulcrum (say a knife-edge) be placed in order that these weights shall equilibrate in any position of the bar?

2. On a certain inclined plane whose height is h, and length is l, and whose co-efficient of dynamic roughness is c; find the formula which will express the velocity a heavy body will acquire in moving from rest down the entire length of that plane at a place where the free force of gravity is g. Also find the expression for the time of motion.

3. Explain the use and construction of the safety-valve of a steam engine. The area of a certain safety-valve is six square inches, the weight of the valve itself is 5 lbs., the lever is 20 inches long and weighs 6 lbs.; the fulcrum is 2 inches from the pin of the valve; what weight must be placed at the extreme end of the lever so that the valve shall open when the steam has acquired an elastic force of 50 lbs. to the square inch?

4. The diameter of the piston of a steam engine is 84 inches, the length of the stroke is 8 feet, the number of single strokes each minute is 20, and the mean effective pressure of the steam on the piston is 36 lbs.; find the horse-power at which it is working.

5. What is the effective horse-power of an engine which raises 20 tons of coal per hour from a pit whose depth is 60 fathoms? Also, explain the distinction between gross and effective horse-power.

6. In what time will an engine of forty horses effective power pump 4,000 cubic feet of water to a height of 60 fathoms?

7. Suppose that one cubic inch of water at 60° becomes 1,694 cubic inches of steam at 212°. What must be the effective evaporating power of the boiler per minute of an engine the gross work of which is 40 horse-power, the pressure of the steam in the cylinder being kept constant at atmospheric pressure, and the elasticity of the vapour in the condenser being kept constant at 3 lbs. to the square inch?

8. A railway train weighs 80 tons, and moves on a level rail on which the friction is 8 lbs. per ton. It had also been found that the resistance of the air to that train, when it moved at the rate of six miles an hour, was 14 lbs.; find the effective horse-power exerted by the engine which keeps it moving at the rate of 40 miles per hour.

9. Describe Brahma's Press, and explain the manner in which the calculation is made of the limit of pressure which the ram of the press can produce, when the weight of each workman who presses on the lever

Appendix, No. 8. — General Class Examination.

which works the plunger of the pump is known, the distance from the fulcrum at which he presses, the distance of the plunger from the same, and the diameters of the ram and of the plunger.

10. The height of a fall of water which works an overshot water-wheel, is 36 feet; 400 cubic feet of water pass over every minute, the whole of which the buckets are large enough to receive, and the modulus of the wheel is 0·73; what is the effective horse-power of the wheel?

11. If the velocity ratio of the driver and follower in a train of mechanism be constant at each instant during the motion, show that the simultaneous motions during any given time have also a constant ratio.

12. Describe the manner in which teeth, whose curved surfaces are formed to the shape of the involutes of the circular cylinders on which they are cut, must be made to engage each other: and show that the velocity of the wheels remains constant whilst each tooth of the driver is engaged with that which it drives. State what that ratio is. In this case, state and prove the ratio of the sliding to the actual motion of either tooth round its centre at any instant of the motion.

Theory of Agriculture.—*Examiner, Dr. Hodges.*

1. What substances does the soil supply for the support of vegetable life?

2. What are the offices in vegetable nutrition performed by the organic matters contained in the soil?

3. How may the excess of water in the soil prove injurious to plants?

4. What is the usual composition of a genuine dissolved bone manure?

5. State the chemical changes which take place in the fermentation of farm-yard manure.

6. What is the composition of bones?

Materia Medica.—*Examiner, Dr. James Seaton Reid.*

1. State the proofs in favour of the opinion that medicines must be absorbed before they can act.

2. What is your reply to the objection, "that the action of some medicines is so quick as to preclude the possibility of their being absorbed?" and mention how long the blood requires to make one round of the circulation in man, in the horse, dog, fowl, and rabbit respectively.

3. You have decided on applying a medical substance externally, in expectation of its being absorbed; at what temperature should you apply it?

4. State the experiments upon which you should rely in support of your regulation of the temperature.

5. What alkaline salts can you combine in a prescription with sulphate of magnesia?

6. Your patient suffers under the "Uric Acid Diathesis;" which of the alkaline salts should you in consequence select, and why?

7. Write prescriptions for the above "alkaline aperient mixtures."

8. State the most absorbable preparations of iron.

9. Write prescriptions for their administration.

10. Name the medicines on the table, and classify them therapeutically.

Practice of Medicine.—*Examiner, Professor Ferguson.*

1. State all the morbid appearances that are observed within the skull, from the earliest to the latest stage of apoplexy; the evidence necessary to establish its existence, and the chief indications of treatment.

Appendix, No. 8.

General Class Examination.

2. Enumerate the causes most likely to induce Typhus; its characteristic phenomena and principles of treatment.

3. Describe all the changes of form from the normal, that the Thoracic Parietes undergo, and the different causes that induce them.

4. Give the differential diagnosis of Epilepsy, Catalepsy, Chorea, and Hysteria; also the ætiolgy of each.

5. Describe the appearances presented by a lung, the seat of tubercular deposition, from its earliest to its latest stage, with the symptoms and physical signs of each.

MEDICAL JURISPRUDENCE.—*Examiner, Dr. Hodges.*

1. Describe the methods employed for the electrolysis of arsenic and antimony.

2. State the method of applying the galvanic (zinc and platinum) coil for the detection of antimony in animal liquids.

3. Mention the poisonous dose of arsenic, the circumstances which may modify the period at which the symptoms produced by it commence, and the time regarded as requisite for the complete elimination of the poison from the system.

4. What are the opinions entertained with respect to the mode in which the mineral poisons act?

5. State the chemical means employed in the treatment of poisoning by antimony, arsenic, copper, lead.

6. What evidence, in cases of supposed infanticide, may be derived from the examination of the stomach of the child?

FACULTY OF LAW.—*Examiner, Professor Molyneux.*

1. What are the conditions essential to give an appointee under a power a *locus standi* in a court of law?

2. In what instance is a codicil, although inconsistent with the will and duly executed, inoperative as an implied revocation.

3. What is the course of proceeding by which a suitor can have the decisions of a judge at *nisi prius* ultimately reviewed by the House of Lords?

4. Can a trustee give a power of attorney to another to act for him in the trust? And give a reason for the answer.

5. When, and of what property may a married woman make a valid will?

6. In what respect does a summons and plaint at law, in its effect at trial, differ from a cause-petition in chancery at the hearing?

7. In what instances is hearsay evidence admissible?

8. A fee simple estate is conveyed to such uses as *A* shall appoint. *A*, in execution of the power, appoints to *B* and his heirs to use of *C* and his heirs. In whom is the *legal* estate?

9. Where a power of appointment over real estate is executed, from whom does the appointee take in point of estate; viz., the party creating the power, or the party executing it? And state the reason.

10. What was the practical inconvenience found in the mode pointed out by the Wills Act, 1 Vic., c. 26, for the execution of wills; and what are the provisions of the 15th Vic., c. 24, to remedy such inconvenience?

11. In what way does the mode for raising issues in a Court of Equity differ from that recognised by the practice of Courts of Law; and what are the distinctive features in the constitution of the two tribunals which give rise to their different procedure in that particular?

Appendix, No. 8.

General Class Examination.

12. What is the true criterion of the relevancy of evidence at a trial?

13. In what instances does it become necessary to carry the pleadings at law beyond the defence?

14. Give an instance of the cypres doctrine as applicable to wills.

15. Where lands are devised charged with legacies, can the devisee make title to a purchaser discharged from the legacies without the concurrence of the legatees? Does the law in this respect now differ from what it had been; and, if so, what is the change which has been effected; and how?

16. *A*, by his will, devises his estate to *B*, and afterwards contracts to sell the estate to *C*, and dies before the conveyance; who then is entitled to the purchase-money?

17. Is a will executed by virtue of a power requiring attestation by three witnesses, but being executed in the presence of two only, a valid execution of the power, and if so, how is this anomaly applicable?

18. Will a Court of Equity relieve against the defective execution of a power; and if so, in what instances?

19. What construction does the Wills Act, 1 Vic., c. 26, put upon the words "dying without leaving issue?" and how does such construction affect the limitation over; and does the statute apply in that particular to a devise of a *chattel* real; and if not, why not?

20. State some of the instances in which the course of proceeding in Chancery has approximated to that of Courts of Law, and *vice versa.*

21. A deed of gift and a will are both executed by the same person, and attested by the same witnesses. Is there any and what difference in the necessary mode of proving them on a trial?

22. Under what circumstances, if any, is a plaintiff or defendant permitted to go into parol evidence to vary the effect of an agreement in writing?

23. What is the distinction between a patent and a latent ambiguity in documents as recognised by the rules of evidence; and what are the practical results of that distinction in making proofs?

24. By what mode, and under what conditions, can a person tried for a criminal offence have the decisions of the judge reviewed by a higher tribunal?

25. What are the circumstances under which the pleader should elect to plead or demur at law?

26. What is a power appendant; and what a power in gross?

Matriculation Examination.

MATRICULATION EXAMINATION.—October, 1863.

MATHEMATICS.—*Examiner, Professor Purser.*

ARITHMETIC.

1. What salary should a merchant pay his clerk, so that when his income tax, at 7*d.* in the £1, is deducted, he may have a clear income of £150 a-year?

2. Required the value of 7 tons 3 cwt. 3 qrs. at £8 18*s.* 6*d.* per ton.

3. Add together $\frac{1}{3}$, $\frac{2}{7}$, $\frac{5}{21}$, $\frac{9}{28}$, and find $\frac{5}{11}$ of $\left(\frac{4}{3}-\frac{3}{5}\right)$.

4. State and prove the rule for the multiplication of decimals.

Multiply 4·35 by ·004,
and 538·695 by 6·00498.

Appendix, No. 8.

Matriculation Examination.

5. A man wishes to go to a town 17 miles off. The railway train to it travels at 20 miles an hour. How long is it worth his while to wait for a train, supposing he himself can walk there at $3\frac{1}{2}$ miles an hour?

6. Calculate to four decimal places the square root of (7).

EUCLID.

1. Any two sides of a triangle are together greater than the third.

2. If the square of one side of a triangle is equal to the sum of the squares of the other two, the angle opposite that side is a right angle.

ALGEBRA.

1. Multiply $x^2+y^2+z^2-yz-zx-xy$ by $x+y+z$.

2. Divide x^4-y^4 by $x-y$, and $x^4+55xy^3+126y^4$ by $x^2+5xy+7y^2$.

3. Prove that the difference of the squares of two consecutive numbers is equal to their sum.

4. If $x=1$, $y=2$, $z=-2$, determine the numerical values of the following expressions:—

$$\frac{x^2+xy+y^2}{x+z},$$

$$\frac{x+3y+yz}{(x+y-z)(z+x-y)(y+z-x)},$$

$$\sqrt{\frac{1+y^3x}{x^3y-1}},$$

5. Solve the following simple equations:—

$$(\alpha)\ \frac{x-3}{2}+\frac{x}{3}=20-\frac{x-19}{2}$$

$$(\beta)\ \frac{x}{4}-\frac{x}{9}+\frac{x}{3}=17.$$

$$(\gamma)\ \frac{3x-a}{2x}=\frac{3}{2}\,\frac{x-b}{x-a}.$$

$$(\delta)\ \frac{5}{x}+\frac{7}{2}=\frac{7}{x}+\frac{1}{2}.$$

PEEL PRIZES IN GEOMETRY.—*Examiner, Professor Purser.*

1. Divide a given right line so that the rectangle under the whole line and one part may be equal to the square of the other part.

2. Similar triangles are to one another in the duplicate ratio of their homologous sides.

3. The common chords of three intersecting circles meet in a point.

4. Given base of a triangle and ratio of sides, find locus of vertex.

5. Find the locus of a point, such that the sum of the squares of tangents drawn from it to two given circles be constant.

6. Three lines drawn from the vertices of a triangle to meet in a point divide the opposite sides into segments. Prove that the continued product of one set of alternate segments is equal to the continued product of the other set.

7. Describe a circle passing through two given points and touching a given circle.

8. The circle described through the middle points of the sides of a triangle passes through the feet of the perpendiculars let fall upon the sides from the opposite vertices.

Appendix, No. 8.

Matriculation Examination.

9. Determine the point the sum of whose distances from the angles of a given triangle is the least possible.

10. Given all the sides of a polygon, its area is a maximum when it is inscribable in a circle.

11. If $a\ b\ c$ denote the sides of a triangle, $E\ F\ G$ the middle points of the sides, and O the intersection of perpendiculars, prove that

$$(OE)^2-\left(\frac{a}{2}\right)^2=(OF)^2-\left(\frac{b}{2}\right)^2=(OG)^2-\left(\frac{c}{2}\right)^2.$$

12. Place three given circles in a given triangle, so that each circle may touch one side and the other two circles.

Scholarship Examinations.

SCHOLARSHIP EXAMINATIONS.—October, 1863.

LITERARY SCHOLARSHIPS.—FIRST YEAR STUDENTS.

GREEK.—*Examiner, Professor MacDouall.*

Translate the following extracts, and answer the questions subjoined :—

I.—LUCIANUS—*Deorum Concilium*, §§ 14, 15, 16 :

ΨΗΦΙΣΜΑ.—'Αγαθῇ Τύχῃ[3].—'Εκκλησίας[4] ἐννόμου ἀγομένης ἑβδόμῃ ἱσταμένου,[4] ὁ Ζεὺς ἐπρυτάνευε,[2] ἐπεστάτει[2] 'Απολλον, ἐγραμμάτευε[2] Ὕπνο στῆς Νυκτός,[4] καὶ Μῶμος τὴν γνώμην εἶπεν. "ἐπειδὴ πολλοὶ τῶν ξένων, οὐ μόνον Ἕλληνες ἀλλὰ καὶ βάρβαροι, οὐδαμῶς ἄξιοι ὄντες κοινωνεῖν ἡμῖν τῆς πολιτείας,[4] παρεγγραφέντες[1] οὐκ οἶδ' ὅπως καὶ θεοὶ δόξαντες ἐμπεπλήκασι[1] μὲν τὸν οὐρανὸν, ὡς μεστὸν εἶναι τὸ συμπόσιον ὄχλου[4] ταραχώδους[2] πολυγλώσσων τινῶν καὶ ξυγκλύδων,[2] ἐπιλέλοιπε[1] δὲ ἡ ἀμβροσία[2] καὶ τὸ νέκταρ, ὥστε μνᾶς[4] ἤδη τὴν κοτύλην εἶναι διὰ τὸ πλῆθος τῶν πινόντων,[1] οἱ δὲ ὑπὸ αὐθαδείας[2] παρωσάμενοι[1] τοὺς παλαιούς τε καὶ ἀληθεῖς θεοὺς προεδρίας[4] ἠξιώκασιν ἑαυτοὺς παρὰ πάντα τὰ πάτρια καὶ ἐν τῇ γῇ προτιμᾶσθαι θέλουσι, δεδόχθω[1] τῇ βουλῇ[3] καὶ τῷ δήμῳ, ξυλλεγῆναι[1] μὲν ἐκκλησίαν[2] ἐν τῷ 'Ολύμπῳ περὶ τροπὰς[2] χειμερινάς,[2] ἑλέσθαι[1] δὲ ἐπιγνώμονας[2] τελείους θεοὺς ἑπτά, τρεῖς μὲν ἐκ τῆς παλαιᾶς βουλῆς τῆς ἐπὶ Κρόνου, τέτταρας δὲ ἐκ τῶν δώδεκα καὶ ἐν αὐτοῖς τὸν Δία· τούτους δὲ τοὺς ἐπιγνώμονας αὐτοὺς μὲν καθέζεσθαι[1] ὀμόσαντας[1] τόν νόμιμον ὅρκον τὴν Στύγα, τὸν 'Ερμῆν δὲ κηρύξαντα[1] ξυναγαγεῖν[1] ἅπαντας ὅσοι ἀξιοῦσι ξυντελεῖν εἰς τὸ συνέδριον·[2] τοὺς δὲ ἥκειν μάρτυρας ἐπαγομένους[1] ἐνωμότους[2] καὶ ἀποδείξεις τοῦ γένους. τοὐντεῦθεν[1] δε οἱ μὲν παρίτωσαν[1] καθ' ἕνα, οἱ δὲ ἐπιγνώμονες ἐξετάζοντες[1] ἢ θεοὺς εἶναι ἀποφανοῦνται[1] ἢ καταπέμψουσιν ἐπὶ τὰ σφέτερα[1] ἠρία καὶ τὰς θήκας[2] τὰς προγονικάς·[2] ἢν[1] δέ τις ἁλῷ[1] τῶν ἀδοκίμων καὶ ἅπαξ ὑπὸ τῶν ἐπιγνωμόνων ἐκκριθέντων[1] ἐπιβαίνων τοῦ Οὐρανοῦ,[4] ἐς τὸν Τάρταρον ἐμπεσεῖν τοῦτον. ἐργάζεσθαι δὲ τὰ αὑτοῦ[1] ἕκαστον, καὶ μήτε τὴν 'Αθηνᾶν[1] ἰᾶσθαι μήτε τὸν 'Ασκληπιὸν χρησμῳδεῖν[2] μήτε τὸν 'Απόλλω[1] τοσαῦτα[1] μόνον ποιεῖν, ἀλλ' ἕν τι ἐπιλεξάμενον[1] ἢ μάντιν ἢ κιθαρῳδὸν ἢ ἰατρὸν εἶναι. ὁπόσοι δε ἤδη ναῶν[1] ἢ θυσιῶν[1] ἠξιώθησαν, ἐκείνων μὲν καθαιρεθῆναι[1] τὰ ἀγάλματα,[2] ἐντεθῆναι[1] δὲ ἢ Διὸς, ἢ Ἥρας ἢ 'Απόλλωνος ἢ τῶν ἄλλων τινός,[4] ἐκείνοις[3] δὲ τάφον χῶσαι[1] τὴν πόλιν καὶ στήλην[2] ἐπιστῆσαι[1] ἀντὶ βωμοῦ. ἢν δέ τις παρακούσῃ[1] τοῦ κηρύγματος[1] καὶ μὴ ἐθελήσῃ ἐπί τοὺς ἐπιγνώμονας ἐλθεῖν, ἐρήμην αὐτοῦ καταδιαιτησάντων.[1]"

Appendix, No. 8. — Scholarship Examinations.

1. Parse fully the words thus numbered (1), giving the leading tense-forms of verbs which are actually used by Attic writers, and resolving compounds into their elements.

2. Give the derivation of the words thus numbered (2).

3, 4. Explain why each of the words thus numbered (3 or 4) is in the dative or in the genitive case.

5. Elucidate from mythology the phrases: *τὸν νόμιμον ὅρκον, τὴν Στύγα,—τῶν δώδεκα,—τῆς παλαιᾶς βουλῆς τῆς ἐπὶ Κρόνου.*

6. Elucidate from the institutions and usages of Athens the phrases: *ψήφισμα,—ἀγαθῇ τύχῃ,—ἐκκλησίας ἐννόμου,—ἑβδόμῃ ἱσταμένου,—ἐπρυτάνευε,—ἐγραμμάτευε,—τὴν γνώμην εἶπεν,—παρεγγραφέντες,—προεδρίας,—δεδόχθω τῇ βουλῇ καὶ τῷ δήμῳ,—κηρύξαντα ξυναγαγεῖν,—ξυντελεῖν εἰς τὸ συνέδριον,—μαρτυρας ἐπαγομένους ἐνωμότους καὶ ἀποδείξεις τοῦ γένους,—τῶν ἀδοκίμων καὶ εκκριθέντων,—ἐρήμην αὐτοῦ καταδιαιτησάντων.*

II.—Xenophon—*Hellenica*, II., 3, §§ 50, 51, 52:

Ὡς δ' εἰπὼν ταῦτα ἐπαύσατο [ὁ Θηραμένης] καὶ ἡ βουλὴ δήλη ἐγένετο εὐμενῶς ἐπιθορυβήσασα, γνοὺς ὁ Κριτίας ὅτι, εἰ ἐπιτρέψοι τῇ βουλῇ διαψηφίζεσθαι περὶ αὐτοῦ, ἀποφεύξοιτο, καὶ τοῦτο οὐ βιωτὸν ἡγησάμενος, προσελθὼν καὶ διαλεχθείς τι τοῖς τριάκοντα ἐξῆλθε καὶ ἐπιστῆναι ἐκέλευσε τοὺς τὰ ἐγχειρίδια ἔχοντας φανερῶς τῇ βουλῇ ἐπὶ τοῖς δρυφάκτοις. πάλιν δ' εἰσελθὼν εἶπεν· "ἐγώ, ὦ βουλή! νομίζω προστάτου ἔργον εἶναι οἵου δεῖ, ὃς ἂν ὁρῶν τοὺς φίλους ἐξαπατωμένους μὴ ἐπιτρέπῃ. καὶ ἐγὼ οὖν τοῦτο ποιήσω. καὶ γὰρ οἵδε οἱ ἐφεστηκότες οὔ φασιν ἡμῖν ἐπιτρέψειν, εἰ ἀνήσομεν ἄνδρα τὸν φανερῶς τὴν ὀλιγαρχίαν λυμαινόμενον. ἔστι δὲ ἐν τοῖς καινοῖς νόμοις τῶν μὲν ἐν τοῖς τρισχιλίοις ὄντων μηδένα ἀποθνήσκειν ἄνευ τῆς ὑμετέρας ψήφου, τῶν δ' ἔξω τοῦ καταλόγου κυρίους εἶναι τοὺς τριάκοντα θανατοῦν. ἐγὼ οὖν," ἔφη, "Θηραμένην τουτονὶ ἐξαλείφω ἐκ τοῦ καταλόγου, ξυνδοκοῦν ἅπασιν ἡμῖν. καὶ τοῦτον," ἔφη, "ἡμεῖς θανατοῦμεν." ἀκούσας ταῦτα ὁ Θηραμένης ἀνεπήδησεν ἐπὶ τὴν ἑστίαν καὶ εἶπεν· "ἐγὼ δ'," ἔφη, "ὦ ἄνδρες! ἱκετεύω τὰ πάντων ἐννομώτατα, μὴ ἐπὶ Κριτίᾳ εἶναι ἐξαλείφειν μήτε ἐμὲ μήτε ὑμῶν ὃν ἂν βούληται, ἀλλ', ὅνπερ νόμον οὗτοι ἔγραψαν περὶ τῶν ἐν τῷ καταλόγῳ, κατὰ τοῦτον καὶ ὑμῖν καὶ ἐμοὶ τὴν κρίσιν εἶναι."

1. State very briefly what is meant by *οἱ τριάκοντα, οἱ τριςχίλιοι, ὁ κατάλογος, τὰ δρύφακτα, ἡ ἑστία.*

2. Explain very briefly the attitude of Critias towards Theramenes described in this passage.

I.—Translate accurately and elegantly the following Ode from the *Medeia* of Euripides:

ΧΟΡΟΣ.

ἄνω ποταμῶν ἱερῶν χωροῦσι παγαί, στροφὴ α΄.
καὶ δίκα καὶ πάντα πάλιν στρέφεται.
ἀνδράσι μὲν δόλιαι βουλαὶ θεῶν τ'
οὐκέτι πίστις ἄραρε,
τὰν δ' ἐμὰν εὔκλειαν ἔχειν βιοτὰν στρέψουσι φᾶμαι.
ἔρχεται τιμὰ γυναικείῳ γένει·
οὐκέτι δυςκέλαδος φάμα γυναῖκας ἕξει·

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μοῦσαι δὲ παλαιγενέων λήξουσ' ἀοιδῶν — ἀντιστροφὴ α'.
τὰν ἐμὰν ὑμνεῦσαι ἀπιστοσύναν.
οὐ γὰρ ἐν ἁμετέρᾳ γνώμᾳ λύρας
ὤπασε θέσπιν ἀοιδὰν
Φοῖβος ἁγήτωρ μελέων· ἐπεὶ ἀντάχησ' ἂν ὕμνον
ἀρσένων γέννᾳ· μακρὸς δ' αἰὼν ἔχει
πολλά τοι ἁμετέραν τ' ἀνδρῶν τε μοῖραν εἰπεῖν.

σὺ δ' ἐκ μὲν οἴκων πατρίων ἔπλευσας — στροφὴ β'.
μαινομένᾳ κραδίᾳ διδύμους ὁρίσασα πόντου
πέτρας, ἐπὶ δὲ ξένᾳ
ναίεις χθονὶ τᾶς ἀνάνδρου
κοίτας ὀλέσασα λέκτρον,
τάλαινα! φυγὰς δὲ χώρας
ἄτιμος ἐλαύνει.

βέβακε δ' ὅρκων χάρις, οὐδ' ἔτ' αἰδὼς — ἀντιστροφὴ β'.
'Ελλάδι τᾷ μεγάλᾳ μένει, αἰθερία δ' ἀνέπτα.
σοὶ δ' οὔτε πατρὸς δόμοι,
δύστανε! μεθορμίσασθαι
μόχθων πάρα, σῶν τε λέκτρων
ἄλλα βασίλεια κρείσσων
δόμοισιν ἐπέστα.

II.—Translate in idiomatic Attic as many of the following sentences as you can :—

1. The male differs from the female in being blacker and having its scales larger. 2. Our front teeth are sharp, but our inner ones are broad. 3. They have more pleasure in speaking ill of me than in praising themselves. 4. Agis was not wont to make war as a secondary business. 5. This property I let to Alkias, and Proteus also rented it in the same way. 6. This man, from attaching the greatest importance to wealth, will subjugate his other desires. 7. Many men who have made many terrible accusations have ere now been suddenly convicted of falsehood. 8. The orators ought to have counselled us about the war against the Barbarians. 9. It is not possible that the same person should at once know and not know the same things. 10. I should not have thought it. 11. I should have heard that one ought to know letters. 12. I would that you had known him as I do. 13. Had they been prosperous, I don't know whether they would ever have brought themselves to be sensible. 14. We think that we should not observe our oaths if we marched against the Athenians. 15. It would seem that I too am one of those who would rather be confuted than confute by means of such arguments. 16. Against all that might be with justice said against the city neither should I be able to reply nor will I attempt to do so.

LATIN.—*Examiner, Rev. Dr. Reichel.*

A.—Translate the following passages :—

1. Quis tota Italia veneficus, quis gladiator, quis latro, quis sicarius, quis parricida, quis testamentorum subjector, quis circumscriptor, quis ganeo, quis nepos, quis adulter, quae mulier infamis, quis corruptor juventutis, quis corruptus, quis perditus inveniri potest, qui se cum Catilina non familiarissime vixisse fateatur?

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2. Quid vero? ut homines Galli ex civitate male pacataquae gens una restat quae bellum populo Romano facere posse et non nolle videatur, spem imperi ac rerum amplissimarum ultro sibi a patriciis hominibus oblatam negligerent, vestramque salutem suis opibus anteponerent, id non divinitus factum esse putatis? praesertim qui nos non pugnando sed tacendo superare potuerunt? Quamobrem Quirites, quoniam ad omnia pulvinaria supplicatio decreta est, celebratote illos dies cum conjugibus ac liberis vestris. Nam multi saepe honores dis immortalibus justi habiti sunt ac debiti, sed profecto justiores nunquam.

3. Venena magnum fas nefasque non valent
   Convertere humanam vicem:
Diris agam vos: dira detestatio
   Nulla expiatur victima.

4. Hic tertius December, ex quo destiti
   Inachia furere, silvis honorem decutit.
Heu me, per Urbem, nam pudet tanti mali,
   Fabula quanta fui! Conviviorum et poenitet,
In quis amantem languor et silentium
   Arguit et latere petitus imo spiritus.
Contrane lucrum nil valere candidum
   Pauperis ingenium? querebar applorans tibi,
Simul calentis inverecundus deus
   Fervidiore mero arcano promorat loco.
Quodsi meis inaestuat praecordiis
   Libera bilis, ut haec ingrata ventis dividat
Fomenta vulnus nil malum levantia,
   Desinet imparibus certare summotus pudor.

5. Caesar consilio ejus probato, etsi opinione trium legionum dejectus ad duas redierat, tamen unum communi saluti auxilium in celeritate ponebat. Venit magnis itineribus in Nerviorum fines. Ibi ex captivis cognoscit quae apud Ciceronem gerantur, quantoque in periculo res sit. Tum cuidam ex equitibus Gallis magnis praemiis persuadet uti ad Ciceronem epistolam deferat. Hanc Graecis conscriptam literis mittit, ne intercepta epistola nostra ab hostibus consilia cognoscantur. Si adire non possit, monet ut tragulam cum epistola ad amentum deligata intra munitionem castrorum abjiciat. In literis scribit se cum legionibus profectum celeriter adfore: hortatur ut pristinam virtutem retineat. Gallus periculum veritus, ut erat praeceptum, tragulam mittit. Haec casu ad turrim adhaesit, neque a nostris biduo animadversa tertio die a quodam milite conspicitur: dempta ad Ciceronem defertur. Ille perlectam in conventu militum recitat, maximaque omnes laetitia adficit. Tum fumi incendiorum procul videbantur, quae res omnem dubitationem adventus legionum expulit.

6. C. Nymphae, noster amor, Libethrides, aut mihi carmen
      Quale meo Codro, concedite; proxima Phoebi
      Versibus ille facit: aut si non possumus omnes,
      Hic arguta sacra pendebit fistula pinu.
   T. Pastores, edera nascentem ornate poetam,
      Arcades, invidia rumpantur ut ilia Codro:
      Aut, si ultra placitum laudarit, baccare frontem
      Cingite, ne vati noceat mala lingua futuro.
   C. Saetosi caput hoc apri tibi Delia parvus
      Et ramosa Micon vivacis cornua cervi.
      Si proprium hoc fuerit, levi de marmore tota
      Puniceo stabis suras evincta cothurno.

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T. Sinum lactis et haec te liba Priape quotannis
Exspectare sat est: custos es pauperis horti.
Nunc te marmoreum pro tempore fecimus: at tu,
Si fetura gregem suppleverit, aureus esto.

C. Nerine Galatea, thymo mihi dulcior Hyblae,
Candidior cycnis, edera formosior alba,
Quum primum pasti repetent praesepia tauri,
Si qua tui Corydonis habet te cura, venito.

T. Immo ego Sardois videar tibi amarior herbis,
Horridior rusco, projecta vilior alga,
Si mihi non haec lux toto jam longior anno est.
Ite domum pasti, si quis pudor, ite juvenci.

7. Turn the following into the *oratio indirecta* :—

Tum Adherbalem hoc modo locutum accepimus: "Patres conscripti, Micipsa, pater meus, moriens praecepit, uti regnum Numidiae tantum modo procuratione existimarem meum: ceterum jus et imperium penes vos esse: simul eniterer domi militiaeque quam maximo usui esse populo Romano: vos mihi cognatorum vos adfinium loco ducerem: si ea fecissem, in vestra amicitia exercitum, divitias, munimenta regni habere."

B.—1. Write brief notes in explanation of the above passages where required.

2. What is the metre of the fourth; and what are its laws?

I.—Translate the following passage into Latin prose :—

We cannot doubt that Hannibal had been busy during the winter in sounding the feelings of the allies; and now it appeared, that, if Italy was to be ravaged by the enemy for a second summer without resistance, their patience would endure no longer. The Roman government therefore resolved to risk a battle: but they sent orders to the proconsuls to wait till the consuls should join them with their newly raised army: for a battle being resolved upon, the Senate hoped to secure success by an overwhelming superiority of numbers. We do not exactly know the proportion of the new levies to the old soldiers: but when the two consuls arrived on the scene of action, and took the superior command of the whole army, there were no fewer than eight Roman legions under their orders, with an equal force of allies: so that the army opposed to Hannibal must have amounted to ninety thousand men. It was evident that so great a multitude could not long be fed at a distance from its resources; and thus a speedy engagement was inevitable.—ARNOLD.

II.—GRAMMATICAL QUESTIONS.

1. Give the comparatives and superlatives of the following adjectives: —*liber*, *acer*, *humilis*, *maledicus*, *nequam*.

2. Give the cardinals, ordinals, and distributives of the following numbers:—two, five, ten, eighteen, twenty-three, thirty-nine, a hundred and one, five hundred and seventy-four.

3. What cases follow the following verbs?—*Utor*, *noceo*, *recordor*, *sum*, *invideo*, *adulor*.

4. Give the chief parts (perfect, supine when existing, and infinitive) of the following verbs:—*audio*, *audeo*, *gaudeo*, *pellicio*, *soleo*, *adorior*, *coquo*, *stringo*.

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5. What adjectives are formed from the possessive pronouns, *noster*, *vester*, *cujus*?

6. Give the way of forming *inceptive* and *desiderative* verbs.

7. What is the meaning of adjectivals formed in *——bundus*?

HISTORY AND THE ENGLISH LANGUAGE.—*Examiner, Professor Craik.*

1. Sketch rapidly the course of the Second Punic War.

2. Sketch rapidly the course of the Civil Wars in Rome from Marius and Sulla to Augustus inclusive.

3. Sketch the history of the reign of any English King or Queen since the Norman Conquest.

4. Explain how the Kingdom of England arose out of what is commonly called the Saxon Heptarchy.

5. As a specimen of composition, *every competitor* will write a short Essay on any one of the following subjects:—

Comparison of the Greeks and Romans;
Comparison of the English and French;
The Eloquence of Cicero;
The Poetical Genius of Horace;
Youth and Age.

One of the questions on Roman History, and also one of those on English History, at least, must be taken up by every competitor.

SECOND YEAR STUDENTS.

GREEK.—*Examiner, Professor MacDouall.*

Translate accurately and perspicuously the following extract from the *Orestes* of EURIPIDES:—

ΧΟΡΟΣ.

αἰαῖ! *στροφή.*
δρομάδες ὦ πτεροφόροι ποτνιάδες θεαί!
ἀβάκχευτον αἳ θίασον ἐλάχετ' ἐν δάκρυσι καὶ γόοις,
μελαγχρῶτες Εὐμενίδες, αἵτε τὸν
ταναὸν αἰθέρ' ἀμπάλλεσθ', αἵματος
τινύμεναι δίκαν, τινύμεναι φόνον,—
καθικετεύομαι, καθικετεύομαι,—
τὸν Ἀγαμέμνονος γόνον ἐάσατ' ἐκλαθέσθαι λύσσας
μανιάδος μόχθων θ' οἵων (φεῦ) τάλας ὀρεχθεὶς ἔρρει,
τρίποδος ὁπόθεν ἄπο φάτιν ἔλακε θεὸς—ἔλακεν ἀνὰ δάπεδον
ἵνα μεσόμφαλοι λέγονται μυχοί.

ὦ Ζεῦ! *ἀντιστροφή.*
τίς ἔλεοις, τίς; ὅδ' ἀγὼν φόνιος ἔρχεται
θοάζων σε τὸν μέλεον, ᾧ δάκρυα δάκρυσι συμβαλεῖ
πορεύων τις εἰς δόμον ἀλαστόρων
ματέρος αἷμα σᾶς, ὅ σ' ἀναβακχιοῖ.
ὁ μέγας ὄλβος οὐ μόνιμος ἐν βροτοῖς·—
κατολοφύρομαι, κατολοφύρομαι·—

ἀνὰ δὲ λαῖφος ὥς τις ἀκάτου θοᾶς τινάξας δαίμων
κατέκλυσεν πόνων ἐν κύμασι λάβροις ὀλεθρίοις ἄφνω.
τίνα δὲ τῶν πάρος ἕτερον οἶκον ἢ τὸν ἀπὸ Ταντάλου
θεογόνων γάμων σέβεσθαί με χρή ;

καὶ μὴν βασιλεὺς ὅδε δὴ στείχει, σύστημα α'.
Μενέλαος ἄναξ, πολλῇ γε τρυφῇ
τῶν Ταντολιδῶν ἐξ αἵματος ὢν
εὐόλβου δῆλος ὁρᾶσθαι.
ὦ χιλιόναυν στρατὸν ὁρμήσας σύστημα β'.
εἰς γῆν 'Ασίαν !
χαῖρ'! εὐτυχίᾳ δ' αὐτὸς ὁμιλεῖς
θεόθεν πράξας ἅπερ ηὔχου.

(a) Elucidate in brief notes whatever may appear to be difficult or ambiguous in phraseology, construction, or arrangement.

(b) If in your translation of any clause or sentence you follow a lection or punctuation different from that adopted above, you will try to quote or describe it accurately, and state whether it appears to you to accord with the required sense, the construction, the dochmiac metre, and the antistrophic arrangement.

LATIN.—*Examiner, Rev. Dr. Reichel.*

A.—Translate the following passages :—

1. PHILOP. Satis jam dolui ex animo et cura satis me et lacrimis maceravi :
Satis jam audivi tuae aerumnas, ad portum mihi quas memorasti.
Hoc agamus. PHILOC. Quid nunc, quoniam tecum servavi fidem
Tibique hunc reducem in libertatem feci ? HE. Fecisti ut tibi,
Philocrates, nunquam referre gratiam possim satis,
Proinde ut tu promeritu's de me et filio. PHILOC. Immo potes,
Pater, et poteris, et ego potero, et di potestatem dabunt,
Ut beneficium benemerenti nostro merito muneres,
Sicut tu huic potes, pater mi, facere merito maxime.
HE. Quid opust verbis ? lingua nullast qua negem quidquid roges.
PHILOC. Postulo abs te ut his illum reddas servum, quem hic reliqueram,
Pignus pro me, mihi qui melior quam sibimet semper fuit
Pro benefactis ejus ut ei premium possim reddere.
HE. Quum bene fecisti, referetur gratia id quod postulas ;
Et id et aliud quod me orabis impetrabis atque te
Nolim succensere quod ego iratus ei feci mali.
PHILOC. Quid fecisti ? HE. In lapicidinas compeditum condidi
Ubi rescivi mihi data esse verba. PHILOC. Vae misero mihi,
Propter meum caput labores homini evenisse optumo.
HE. At ob eam rem mihi libellam agenti ne duis :
Gratiis a me, ut sit liber, ducito.

2. PAR. Sed Pamphilum ipsum video stare ante ostium :
Ite intro : ego hunc adibo si quid me velit.
Ere etiam tu hic stas ? PAM. Equidem te expecto. PAR. Quid est ?
PAM. In arcem transcurso opus est. PAR. Quoi homini ? PAM. Tibi.
PAR. In arcem ? quid eo ? PAM. Callidemidem hospitem
Myconium, qui mecum una vectust, conveni.

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Scholarship Examinations.

Par. Perii. vovisse hunc dicam, si salvos domum
Redisset unquam, ut me ambulando rumperet.
Pam. Quid cessas? Par. Quid vis dicam? an conveniam modo?
Pam. Immo quod constitui hodie conventurum eum,
Non posse, ne me frustra illi expectet. vola.
Par. At non novi hominis faciem. Pam. At faciam ut noveris:
Magnus, rubicundus, crispus, crassus, caesius,
Cadaverosa facie. Par. Di illum perduint.
Quid, si non veniat? maneamne usque ad vesperum?
Pam. Maneto: curre. Par. Non queo: ita defessus sum.

3. Camillus meliore multo laudo, quam quum triumphantem albi per urbem vexerant equi, insignis justitia fideque hostibus victis, quum in urbem redisset, tacite ejus verecundiam non tulit senatus, quin sine mora voti liberaretur: crateramque auream donum Apollini Delphos legati qui ferrent, L. Valerius, L. Sergius. A. Manlius, missi longa una nave, haud procul freto Siculo a piratis Liparensium excepti, devehuntur Liparas. Mos erat civitatis, velut publico latrocinio partam praedam dividere. Forte eo anno in summo magristratu erat Timasitheus quidam, Romanis vir similior quam suis. Qui legatorum nomen, donumque et Deum cui mitteretur, et doni causam veritus ipse, multitudinem quoque, quae semper ferme regenti est similis, religionis justae implevit: adductosque in publicum hospitium legatos, cum praesidio etiam navium Delphos prosecutus, Romam inde sospites restituit. Hospitium cum eo senatus consulto est factum, donaque publice data. Eodem anno in Aequis varie bellatum: adeo ut in incerto fuerit et apud ipsos exercitus et Romae, vicissent victine essent.

4. Venio ad Brutum tuum, immo nostrum: sic enim mavis. Equidem omnia feci, quae potui aut in mea provincia aut in regno experiri. Omni igitur modo egi cum rege et ago quotidie, per literas scilicet. Ipsum enim triduum quatriduumve mecum habui turbulentis in rebus, quibus eum liberavi. Sed et tum praesens et postea creberrimis non destiti rogare et petere mea causa, suadere et hortari sua. Multum profeci, sed quantum, non plane, quod longius absum, scio. Salaminios autem, hos enim poteram coercere, adduxi ut totum nomen Scaptio vellent solvere: sed centesimis ductis a proxima quidem syngrapha, nec perpetuis sed renovatis quotannis. Numerabantur nummi: noluit Scaptius. Tuu, qui ais Brutum cupere aliquid perdere? Quaternas habebat in syngrapha. Fieri non poterat: nec, si posset, ego pati possem. Audio omnino Scaptium poenitere. Nam, quod senatus consultum esse dicebat, ut jus ex syngrapha diceretur, eo consilio factum est, quod Salaminii contra legem Gabiniam sumpserant. Vetabat autem Auli lex jus dici de ita sumpta pecunia. Decrevit igitur senatus, ut jus diceretur ista syngrapha.

5. Praeclare Anaxagoras: qui quum Lampsaci moreretur, quaerentibus amicis, velletne Clazomenas in patriam, si quid accidisset, auferri? Nihil necesse est, inquit; undique enim ad inferos tantumdem viae est. Totaque de ratione humationis unum tenendum est, ad corpus illam pertinere, sive occiderit animus sive vigeat. In corpore autem perspicuum est, vel extincto annimo vel elapso, nullum residere sensum. Sed plena errorum sunt omnia. Trahit Hectorem ad currum religatum Achilles: lacerari eum et sentire credo putat. Ergo hic ulcisitur, ut sibi quidem videtur. At illa sicut acerbissimam rem moeret:

> Vidi vivere quod me passa aegerrume
> Hectorem curru quadrijugo raptarier.

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Quem Hectorem? aut quamdiu ille erit Hector? Melius Accius, et aliquando sapiens Achilles:

Immo enimvero corpus Priamo reddidi, Hectorem abstuli.

Non igitur Hectora traxisti, sed corpus quod fuerat Hectoris. Ecce alius exoritur e terra, qui matrem dormire non sinat.

Mater, te appello, tu qui curam somno suspensam levas,
Neque te mei miseret: surge et sepeli natum.

Haec quum pressis et flebilibus modis qui totus theatris moestitiam inferant, concinuntur; difficile est non eos qui inhumati sunt, miseros judicare:

Priusquam ferae, volucresque—

Metuit ne laceratis membris minus bene utatur, ne ambustis non extimescit.

Non relliquias sic meas siris, denudatis ossibus,
Tetra sanie delibutas foede divexarier,

B.—1. Write *brief* notes in explanation, where required.
2. Give the metres of the verses that occur.
3. Give a sketch of the plots of the Captivi and Hecyra.

Translate into Latin:—

A few months after, on the night of the eighteenth March in the following year, a fire broke out at Rome in several places at once, in the neighbourhood of the Forum. The temple of Vesta, and its eternal fire, the type of the life of the Commonwealth, were saved with great difficulty. The fire was said to be the work of some noble Capuans, whose fathers had been beheaded by Q. Fulvius: they were accused by one of their slaves; and a confession of the charge having been forced from their other slaves by torture, the young men were put to death. Fulvius made this a pretence for fresh severities against the Capuans: and no doubt it had an influence upon the Senate when the fate of the three revolted cities of Campania was finally decided. As the Capuans had enjoyed the franchise of Roman citizens, the Senate was obliged to obtain an act of the comitia, empowering them to determine their future condition. A number of decrees were passed accordingly, as after the great Latin war, distinguishing the punishment of different classes, and even of different individuals. All who had been Senators, or had held any office, were reduced to utter beggary, their lands being forfeited to Rome, together with the whole Campanian territory, and their personal property of every kind being ordered to be sold.

GRAMMATICAL QUESTIONS.

1. Give the rule for the use of the reflexive pronoun.
2. Within what limits is the Infinitive in Latin used like a Noun Substantive?
3. What is the difference between the Subjunctive and the Indicative in hypothetical sentences?
4. Classify the uses of the Subjunctive.
5. Turn the following into *oratio obliqua*:—

Ea tanta est urbs ut ex quatuor urbibus maximis constare dicatur, quarum una est ea, quam dixi, Insula in qua domus est, quae regis Hieronis fuit, qua praetores uti solent.

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6. When is *quum* used with the Indicative, and when with the Subjunctive?

7. Name some of the principal Active Verbs which have a Perfect Participle of passive form with active sense.

8. Give some of the deponents whose Perfect Participles have both an active and a passive sense.

9. How is the want of an Active Perfect Participle supplied in Latin?

HISTORY AND ENGLISH LITERATURE.—*Examiner, Professor Craik.*

1. Describe the condition of the English Language for the first two centuries after the Conquest.

2. Give an account of the *Brut* of *Layamon*, the *Ormulum*, the *Chronicle* of *Robert of Gloucester*, and that of *Robert de Brunne*; noting distinctly such particulars as you recollect respecting the author of each work; describing its subject, language, style, form of composition, and character as a literary production; mentioning the original in another language from which in any case it may have been translated; and adding always whether, when, and by whom it has been given to the world through the press.

3. Give an account of the principal peculiarities that distinguish the English of Chaucer, in the vocabulary and in the grammar, both from the immediately preceding stage or form of the language and from the English of the present time; and point out and illustrate the indications which might have been discerned in it of a tendency to farther change, and of the nature and direction of such change.

4. Give an account of the English language in its existing condition; noting the sources from which its vocabulary has been drawn, with the expedients of which it may be still in the habit of availing itself for the fabrication of new words, and explaining the state to which its grammatical system has been reduced.

5. Compare the English language as an instrument of expression with any other language or languages with which you may be acquainted.

MODERN LANGUAGES.—*Examiner, Dr. Frädersdorff.*

Translate into English :—

On appelle géographie la science qui s'occupe de la description de la Terre. C'est assurément une des sciences les plus utiles et les plus intéressantes : nous le ferons comprendre par une comparaison.

Supposons que l'on acquière à la campagne une jolie propriété, où l'on ira fixer son séjour : on s'empressera sans doute de prendre connaissance de tout ce qu'elle renferme ; on examinera les sources, les ruisseaux et les étangs qui s'y trouvent, et l'on se demandera quel parti avantageux on peut en tirer ; on s'informera des grains, des fruits, des légumes et du bois que cette propriété peut fournir ; des bestiaux que les pâturages y nourrissent ; des chemins et des sentiers par où pourront être transportés les produits que l'on recueillera. On tiendra aussi à savoir quelles sont les mœurs et l'industrie des voisins avec lesquels on sera souvent en rapport ; enfin, on considérera comme très utile de bien connaître cette habitation dans toutes ses parties.

Eh bien ! la Terre est la propriété et l'habitation du genre humain. Nous sommes donc tous intéressés à connaître ce domaine commun des hommes, et à savoir quelles productions il peut offrir à nos usages, par quels lieux elles sont fournies, par quelles routes on peut les faire venir, et quels doivent être nos rapports avec les autres habitants de cette Terre.

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Scholarship Examinations.

Translate into French or German :—

It is one of the great inconveniences of excess in human science that we no longer find any on our own level; those even who know as much as ourselves, do not know it as we do. From the heights to which we have risen, we see those below us miserable and little. For in the superiority of mind, as in that of power, isolation is born of greatness. To live in isolation is the chastisement of him who wishes to raise himself too high!

Der frühe Tod.

Früh Morgens ging ein Mädchen in den Garten, ſich einen Kranz zu ſammeln aus ſchönen Roſen. Sie ſtanden alle noch in ihrer Knoſpe da, geſchloſſen-oder halbgeſchloſſen, des Morgenthaues duftende Kelche. „Noch will ich euch nicht brechen," ſagte das Mädchen. „Erſt ſoll euch die Sonne öffnen: ſo werdet ihr ſchöner prangen und ſtärker duften."

Sie kam am Mittage und ſah die ſchönſten Roſen vom Wurm zerfreſſen, vom Strahl der Sonne gebeugt, erblaßt und welkend. Das Mädchen weinte über ihre Thorheit, und am folgenden Morgen ſammelte ſie ſich ihren Kranz früh.

Seine liebſten Kinder ruft Gott früh aus dieſem Leben, ehe der Strahl der Sonne ſie ſticht, ehe der Wurm ſie berühret. Das Paradies der Kinder iſt eine hohe Stufe der Herrlichkeit; der gerechteſte Fromme kann ſie nicht betreten, denn ſeine Seele iſt befleckt geweſen.

Herder.

Gewalt und Liebe.

Wind und Sonne machten Wette
Wer die meiſten Kräfte hätte,
Einen armen Wandersmann
Seiner Kleider zu berauben.

Wind begann;
Doch ſein Schnauben
That ihm Nichts; der Wandersmann
Zog den Mantel dichter an.

Wind verzweifelt nun und ruht;
Und ein lieber Sonnenſchein
Füllt mit holder, ſanfter Gluth
Wanderers Gebein.

Hüllt er nun ſich tiefer ein?
Nein!—
Ab wirft er nun ſein Gewand,
Und die Sonne überwand.

Herder.

FRENCH QUESTIONS.

1. When and to what effect is the *y* of the root retained in the verbs *pay-er*, *employ-er*, *appuy-er*, &c., and when is this *y* replaced by a simple *i*? Give instances.

2. In which tenses, persons, and what mood does the characteristic *i* of the root of verbs *pri-er*, *cri-er*, *oubli-er*, &c., produce a combination of *ï* with the accidental *i* of the termination?

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3. What are the respective meanings and genders of the following homonymes :—

cour.	*foi.*	*pair.*	*seau.*
cours.	*fois.*	*paire.*	*sceau.*
	foie.		

4. Give the first person sing. and plur. of the pres. and imperf. subj. of the following verbs :—*s'asseoir*, *cueillir*, *prendre*, *résoudre*.

5. Write out (in juxtaposition) : (1) *plur. pres. indic.*, (2) the whole of *pres. subj.* and *imperf. indic.* of *peindre* (to paint) and *peigner* (to comb).

6. Explain when the cardinal numbers *vingt* and *cent* take the plural ending, and when they reject it.

7. Would you employ, as a general rule relative to the *order of successions* of sovereigns of the same name, the *ordinal* or *cardinal* number?

8. Render the distinctive meanings of *un brave homme* and *un homme brave*, and *un honnête homme* and *un homme honnête*, *un grand homme* and *un homme grand*.

9. Write out : *pres indic.* and *subj.* and 1 fut. of *s'en aller*.

10. Give 1 pers. sing. and plur. (*pres.* and *imperf. indic.* and *subj.*) and *past partic.* of *mourir*, *pouvoir*, *mouvoir*, *valoir*, *vouloir*, *coudre*, and *moudre*.

11. Make a list of some conjunctions and conjunctive locutions requiring the subjunctive.

12. Translate the following idiomatic and proverbial phrases :—

(1.) Il se fait fort de la réussite.
(2.) Vous porterez la peine de votre paresse.
(3.) Il faut qu'il en prenne son parti.
(4.) Il s'y prit de tant de façons qu'il en vint à bout.
(5.) Je l'ai mis dans son tort.

GERMAN QUESTIONS.

1. Give examples of the peculiar character of the *modern* form of adjectives, in contradistinction to the *ancient* form. Which of the two forms adheres most to general principles of grammar?

2. Which are the characteristic consonants of roots of verbs *rejecting* the accidental e of the termination?

3. When do verbs with roots in el or er drop the e from the root itself, and when from the termination? Exemplify.

4. To *modify* a vowel is to *change* a, o, u, into ä, ö, ü, respectively. Do nouns *masc.* and *fem.* with plural-ending e, mostly modify the above vowels? What is the rule, in the above respect, with reference to nouns with plural-ending er? Give some instances.

5. Mention some verbs of the ancient form that are conjugated after binden, brechen, fliegen, leſen. Give the imperf. subj. and the past partic. of these verbs.

6. Mention some idiomatical locutions with the verbs laſſen and dürfen. Translate accurately: Er laßt ihn ſeine Stärke fühlen. Das läßt nicht für meinen Stand. Das läßt ſich nicht mit Gewißheit ſagen.

7. State the rule relating to *intransitive* verbs to be conjugated with ſein (*to be*) in German, but with haben (*to have*) in English.

8. Trace some of the most general rules relating to the use of the *subjunctive* in German.

9. What is the general rule for the *sequence of tenses?* Is the *present subjunctive* ever found after the *imperf. indic.?*

10. Give a list of conjunctions introducing subordinate clauses, under the following heads :—(1) with reference to *place*, (2) *time*, (3) cause, (4) condition, (5) manner, (6) proportion, (7) concession. Illustrate by examples.

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Translate the following idiomatical locutions :—

(1.) Die Sache dürfte wohl überflüſſig ſein.
(2.) Er ſoll ein Verwandter des verſtorbenen Herzogs ſein.
(3.) Er will ein Verwandter des alten Feldherrn ſein.
(4.) Er ließ ihn zur Ader.
(5.) Er ließ ihn zu ſich kommen.

THIRD YEAR STUDENTS.

LATIN.—*Examiner, Rev. Dr. Reichel.*

Translate :—

1. Congruens crediderim recensere caeteras quoque reipublicae partes, quibus modis ad eum diem habitae sint, quoniam Tiberio mutati in deterius principatus initium ille annus attulit. Jam primum publica negotia et privatorum maxima apud patres tractabantur, dabaturque primoribus disserere et in adulationem lapsos cohibebat ipse : mandabatque honores, nobilitatem majorum, claritudinem militiae, illustres domi artes spectando, ut satis constaret non alios potiores fuisse. Sua consulibus, sua praetoribus species : minorum quoque magistratuum exercita potestas : legesque, si majestatis quaestio eximeretur, bono in usu. At frumenta et pecuniae vectigales, caetera publicorum fructuum societatibus equitum Romanorum agitabantur. Res suas Caesar spectatissimo cuique, quibusdam ignotis ex fama mandabat, semelque adsumpti tenebantur prorsus sine modo, quum plerique isdem negotiis insenescerent. Plebes acri quidem annona fatigabatur : sed nulla in eo culpa ex principe : quin infecunditati terrarum aut asperis maris obviam iit, quantum impendio diligentiaque poterat. Et ne provinciae novis oneribus turbarentur utque vetera sine avaritia aut crudelitate magistratuum tolerarent, providebat : corporum verbera, ademptiones bonorum aberant. Rari per Italiam Caesaris agri, modesta servitia, intra paucos libertos domus : ac si quando cum privatis disceptaret, forum et jus. Quae cuncta non quidem comi via, sed horridus ac plerumque formidatus, retinebat tamen, donec morte Drusi verterentur : nam dum superfuit, mansere, quia Seianus incipiente adhuc potentia bonis consiliis notescere volebat, et ultor metuebatur non occultus odii, sed crebro querens incolumi filio adjutorem imperii alium vocari. Et quantum superesse ut collega dicatur? primas dominandi spes in arduo : ubi sis ingressus, adesse studia et ministros. Extructa jam sponte praefecti castra, datos in manum milites : cerni effigiem ejus in monimentis Cn. Pompeii : communes illi cum familia Drusorum fore nepotes : precandam post haec modestiam ut contentus esset.

2. Illa autem quae Carneades afferebat, quem ad modum dissolvitis? Si nullum corpus immortale sit nullum esse corpus sempiternum : corpus autem immortale nullum esse, ne individuum quidem nec quod dirimi distrahive non possit. Cumque omne animal patibilem naturam habeat, nullum est eorum quod effugiat accipiendi aliquid extrinsecus, id est quasi ferendi et patiendi, necessitatem : et, si omne animal tale est, immortale nullum est. Ergo itidem, si omne animal secari ac dividi potest, nullum est eorum individuum, nullum aeternum : atqui omne animal ad accipiendam vim externam et ferendam paratum est : mortale igitur omne animal et dissolubile et dividuum sit necesse est. Ut enim si omnis cera commutabilis esset, nihil esset cereum quod commutari non posset, item nihil argenteum, nihil aeneum si commutabilis esset natura argenti et aeris; similiter igitur, si omnia, quae sunt, ex quibus cuncta constant, mutabilia sunt, nullum corpus esse potest non mutabile : mutabilia autem sunt illa, ex quibus omnia constant, ut vobis videtur : omne igitur corpus mutabile

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est. At si esset corpus aliquod immortale, non esset omne mutabile: ita efficitur ut omne corpus mutale sit. Etenim omne corpus aut aqua aut aer aut ignis aut terra est, aut id quod est concretum ex iis aut ex aliqua parte eorum: horum autem nihil est quin intereat.

. . . Nam quos ab hominibus pervenisse dicis ad deos, tu reddes rationem quemadmodum id fieri potuerit aut cur fieri desierit, et ego discam libenter. Quo modo nunc quidem est, non video, quo pacto ille cui in monte Oetaeo illatae lampades fuerunt, ut ait Accius, "in domum aeternam patris" ex illo ardore pervenerit, quem tamen Homerus apud inferos conveniri facit ab Ulixe sicut caeteros qui excesserant vita. Quamquam, quem potissimum Herculem colamus, sane scire velim: pluris enim tradunt nobis ii qui interiores scrutantur et reconditas literas.

3. Nemo dabit regum, quanti subsellia constant
Et quae conducto pendent anabathra tigillo,
Quaeque reportandis posita es orchestra cathedris.
Nos tamen hoc agimus, tenuesque in pulvere sulcos
Ducimus et littus sterili versamus aratro.
Nam si discedas, laqueo tenet ambitiosum
Scribendi cacoethes et aegro in corde senescit.
Sed vatem egregium, cui non sit publica vena,
Qui nihil expositum soleat deducere, nec qui
Communi feriat carmen triviale moneta.
Hunc, qualem nequeo monstrare et sentio tantum,
Anxietate carens animus facit, omnis acerbi
Impatiens, cupidus silvarum avidusque bibendis
Fontibus Aonidum: neque enim cantare sub antro
Pierio thyrsumve potest contingere sana
Paupertas atque aeris inops quo nocte dieque
Corpus eget: satur est quum dicit Horatius "Evoe!"
Qui locus ingenio, nisi quum se carmine solo
Vexant et dominis Cirrhae Nysaeque feruntur
Pectora vestra duas non admittentia curas?

4. (Unprepared.)
Nunc igitur, qui res Romanas temperat impar,
Non trabe, sed tergo prolapsus, et ingluvie albus,
Et studia et sapiens hominum nomenque genusque
Omnia abire foras, atque urbe excedere jussit.
Quid facimus? Graios, hominumque reliquimus urbes
Ut Romana foret magis his instructa magistris:
Nunc, Capitolino veluti turbante Camillo
Ensibus et trutina Galli fugere relicta,
Sic nostri [palare] senes [dicuntur,] et ipsi
Ut ferale suos onus exstirpare libellos.
Ergo Numantinus Libycusque erravit in isto
Scipio, qui Rhodio crevit formante magistro,
Caetera et illa manus bello fecunda secundo:
Quos inter prisci sententia dia Catonis
Scire adeo magni fecisset, utrumne secundis
An magis adversis staret Romana propago.
Scilicet adversis: nam cum defendier armis
Suadet amor patriae, et captiva penatibus uxor,
Convenit, ut vespis, quorum domus arxque movetur,
Turba rigens strictis per lutea corpora telis.
Ast ubi pax secura redit, oblita laborum
Plebs, patresque simul somno moriuntur obeso.
Romulidarum igitur longa et gravis exitium pax.

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B.—1. Write brief notes in elucidation of the above passages, where required.

2. Mention any peculiarities in the style of the language of Tacitus and Juvenal, and give instances.

I.—Translate the following passage into Latin Prose :—

Now the due observation of this law, which reason teacheth us, cannot but be effectual unto their great good who observe the same. For we see the whole world, and each part thereof, so compacted, that as long as each thing performeth only that work which is natural unto it, it thereby preserveth both other things and also itself. Contrariwise, let any principal thing, as the sun, the moon, any one of the heavens or elements, but once cease or fail, or swerve, and who doth not easily conceive that the sequel thereof would be ruin both to itself and whatsoever dependeth on it? And is it possible that man, being not only the noblest creature in the world, but even a very world in himself, his transgressing the law of his nature should draw no manner of harm after it?—HOOKER.

II.—QUESTIONS.

1. Give the name of the interlocutors in the *De Natura Deorum*, and give a brief summary of the systems they expound or attack, and of the arguments they use.

2. Mention the leading facts recorded in the first four books of the Annals of Tacitus.

3. Draw parallels between Horace and Juvenal, and Plautus and Terence.

(*N.B.—These questions should, if possible, be answered in Latin.*)

MODERN LANGUAGES.—*Examiner, Dr. Frädersdorff.*

Translate into English :—

Dieu avait choisi le duc d'Enghien pour sauver la France, durant la minorité d'un roi de quatre ans. Aussi vers les premiers jours de ce règne, à l'âge de vingt-deux ans, le duc conçut un dessein où les vieillards expérimentés ne purent atteindre : mais la victoire le justifia devant Rocroy. L'armée ennemie est plus forte, il est vrai ; elle est composée de ces vieilles bandes wallonnes, italiennes et espagnoles, qu'on n'avait pu rompre jusqu'alors. Mais pour combien fallait-il compter le courage qu'inspirait à nos troupes le besoin pressant de l'état, les avantages passés et un jeune prince du sang qui portait la victoire dans ses yeux ! Dom Francisco de Mellos l'attend de pied ferme ; et sans pouvoir reculer, les deux généraux et les deux armées semblent avoir voulu se renfermer dans des bois et des marais pour décider leur querelle, comme deux braves en champ clos. Alors que ne vit-on pas ? Le jeune prince parut un autre homme. Touchée d'un si digne objet, sa grand âme se déclara tout entière : son courage croissait avec les périls, et ses lumières avec son ardeur.

A la nuit qu'il fallut passer en présence des ennemis, comme un vigilant capitaine, le duc d'Enghien reposa le dernier ; mais jamais il ne reposa plus paisiblement. A la veille d'un si grand jour, et dès la première bataille, il est tranquille, tant il se trouve dans son naturel ; et on sait que le lendemain, à l'heure marquée, il fallut réveiller d'un profond

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sommeil cet autre Alexandre. Le voyez-vous comme il vole ou à la victoire ou à la mort? Aussitôt qu'il eut porté de rang en rang l'ardeur dont il était animé, on le vit presque en même temps pousser l'aile droite des ennemis, soutenir la nôtre ébranlée, rallier les Français à demi vaincus, mettre en fuite l'Espagnol victorieux, porter partout la terreur, et étonner de ses regards étincelants ceux qui échappaient à ses coups.

Tu vois mon trouble, apprends ce qui le cause;
Et juge s'il est temps, ami, que je repose.
Tu te souviens du jour qu'en Aulide assemblés
Nos vaisseaux par les vents semblaient être appelés.
Nous partions; et déjà, par mille cris de joie
Nous menacions de loin les rivages de Troie.
Un prodige étonnant fit taire ce transport:
Le vent qui nous flattait nous laissa dans le port.
Il fallut s'arrêter; et la rame inutile
Fatigua vainement une mer immobile.
Ce miracle inouï me fit tourner les yeux
Vers la divinité qu'on adore en ces lieux:
Suivi de Ménelas, de Nestor, et d'Ulysse
J'offris sur ses autels un secret sacrifice.
Quelle fut sa réponse! et quel devins-je, Arcas,
Quand j'entendis ces mots prononcés par Calchas!
"Vous armez contre Troie une puissance vaine,
Si, dans un sacrifice auguste et solennel,
Une fille du sang d'Hélène
De Diane en ces lieux n'ensanglante l'autel.
Pour obtenir les vents que le ciel vous dénie,
Sacrifiez Iphigénie."

Translate into French or German:

At the age of twenty-five he was master of seven languages: but unlike many estimable polyglots, who seem to have given themselves the trouble of studying different idioms, only to prove their ignorance and insufficiency before foreigners, as well as their own countrymen, the Count de Charney made these studies only preparations for others, which he regarded as far more important. If he had many servants in the service of his understanding, each of them at least had his own occupations, his own portion of duty to perform. With the Germans he studied metaphysics; with the Italians and English, politics and legislation; with all, history, which he could examine even in its earliest sources, thanks to his knowledge of the Hebrew, Greek, and Roman tongues.

Schweizerbund. Wilhelm Tell.

Werner Stauffacher fuhr über den See in das Land Uri zu ſeinem Freunde Walther Fürſt von Attinghauſen, einem reichen Landmanne. Er fand einen jungen Mann von Muth und Verſtand bei ihm verborgen; von dieſem erzählte Walther ſeinem Freund: Er ſei ein Unterwaldner aus dem Melchthal, in welches man von Kerns hereingehe; er heiße Erni (Arnold) an der Halden und ſei ihm verwandt; um eine geringe Sache, die Erni gethan, habe, ihn Landenberg (königlicher Vogt) um ein Geſpann ſchöner Ochſen gebüßt; ſein Vater Heinrich habe den Verluſt ſehr bejammert; auf dieſes habe Vogts

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Knecht geſagt: „„wenn die Bauern Brod eſſen wollen, ſo können ſie ſelbſt an dem Pflug ziehen.““ Hierüber ſei Erni das Blut aufgewallt, er habe mit ſeinem Stock dem Knecht einen Finger gebrochen; darum verberge er ſich hier; indeß habe der Vogt ſeinem alten Vater die Augen ausſtechen laſſen.“ Hierauf klagten ſie einander ſehr daß alle Billigkeit mehr und mehr unter die Füße getreten würde, und Walther bezeugte, auch der hocherfahrne Herr von Attinghauſen ſage, die Neuerungen werden unerträglich; wohl glaubten ſie, das Widerſtand grauſame Rache über die Waldſtätte bringen könnte, doch kamen ſie überein, Tod ſei beſſer, als ungerechtes Joch dulden.

Grammatical Questions.

FRENCH.

1. Exemplify the rules relating to *quelque*; (1) when followed by an *Adjective, Participle,* or *Adverb*; (2) when taking a plural termination. When is it written *quel que*? Has *quel*, followed by *que*, to agree with the subject of the clause in gender and number?

2. What *mood* is required in the above instance of *quelque* and *quel que*? *Translate:* However rich he may be. Whatever merits you may have. Whatever your reputation may be. Whatever your reasons may be. Whatever reasons you may have.

3. Replacing *quelque* by *tout*, would you use the *Subjunctive*? *Translate:* However elegantly dressed she *is* (or *may be.*)

4. When is *toute* adverbially employed instead of *tout*? Account for its use in the following examples: Elle est *toute* stupefaite;—*toute* hardie qu'elle est; and even with a plural termination—*toutes* spirituelles qu'elles paraissent.

5. Write out of the verbs *croître* and *croire*, the following tenses: (1) the *Singular Present Indicative*, (2) the *Preterit Definite*, (3) the *Imperfect Subjunctive*, (4) the Second Person Singular of the *Imperative*.

6. Give of the verbs *coudre* and *moudre*, (1) the plural of the *Present Indicative*, (2) the *Present Subjunctive*, (3) the *défini* and *Imperfect Subjunctive*, (4) the *Present* and the *Past Participle*.

7. How does a difference of *gender* affect the respective *meanings* of the following words: *espace, forêt, moule, poste, relâche, souris, tour, trompette, voile?*

8. Show the difference between the Second Person plural *Present Indicative* of *dire, redire,* and *contredire, médire, prédire.* Give the *Imperative* (Second Person plural) of the latter verbs (according to the French Academy.) Do Laveaux and other Grammarians differ from the *Academy* on this point?

9. Give the French idioms for (1) *such as*, by translating: *Such as* you see them (*masc.*) I give you them *such as* they (*fem.*) are. (2) *Such a one* (*i.e., many a one*) *e.g.*, Many a man laughs to-day that will weep to-morrow. Many a woman fancies herself handsome that is *anything but that.* Observe also this latter idiom.

10. Render or explain the following idiomatical and proverbial locutions:—

Chercher midi à quatorze heures.
Faire croire que des vessies sont des lanternes.
Faire la pluie et le beau temps.
Cette comparaison est tirée par les cheveux.

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Scholarship Examinations.

1. What is the date of the commencement of the age of *Renaissance?*

2. Who first introduced the use of the French language instead of the Latin for official purposes?

3. What effect was produced by this change on literature generally?

4. How was French literature affected by the Port Royal?

5. Was Pascal a member of that society? Name his principal works.

6. What are the opinions of the most eminent French authors respecting his writings? When did he die?

7. Who were the most eminent French philosophical writers of the eighteenth century? What is the prevailing spirit in their works?

8. Who were the originators of the celebrated French *Encyclopédie?*

GERMAN.

1. What is meant in German by the grammatical term „Umlaut?" Define this word etymologically.

2. Exemplify the application of the above term (Umlaut) in the formation of the plural.

3. Are nouns neuter with plural-ending e mostly *modified* (*i.e.* affected) by the Umlaut or not? What is the gender of Roß, and what is its plural?

4. Form some sentences in which the verb Können denotes *moral* (opposed to *physical*) possibility.

Translate :—Er kann ein Betrüger ſein. Er kann es vergeſſen haben.

5. Give some sentences in which dürfen is conveying a notion of probability, and translate accurately—Die Frage dürfte wohl überflüſſig ſein. Du dürfteſt dich vielleicht geirrt haben.

6. Give the second and third person singular of the present indicative of ſtehlen, gebären, leſen, and ſehen.

7. Which irregular verbs assume an ancient *abnormal* form in the Imperfect *Subjunctive*, by changing the characteristic a of the Imperfect *Indicative* into ö or ü, instead of presenting the usual *normal* form of ä?

8. What is the imperfect indicative of helfen, ſterben, werben, ſpinnen, gerinnen?

9. Form some sentences with verbs governing the Dative: also with prepositions governing (1) the Dative only, (2) the Accusative only, (3) the Dative or Accusative. Distinguish (by some examples) between grammatical *transposition* and *inversion.*

10. What is the usual gender of *primary derivatives?* Form substantives from ſchlagen, werfen, ſpringen, brechen.

11. Remark on the peculiar idiomatical turn taken in German in rendering the English *Participial* Substantive.

Translate :—

(1). He has done himself a great deal of harm *by* (*his*) *offending* his relations.

(2.) I infer it from *his not coming.*

(3.) I know him by *his speaking* so loud.

(4). Er iſt davon krank geworden, daß er mehrere Nächte gewacht hat.

12. Form two or three sentences with verbs requiring the *Accusative* of the *person* and the *Genitive* of the *thing.*

1. Name some of the principal works of Herder. When did he live?

2. Are you acquainted with the subject of Lessing's *Laokoon?* Has that work a *scientific* or rather an *artistical* tendency? Explain. Did Lessing write any *drama?*

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Scholarship Examinations.

3. What writer was Iffland?
4. Who wrote the tragedy „das Gewiſſen?“
5. What may you know of Klopstock and his works?
6. State what you know or may have read of the two Schlegels.

SCIENCE SCHOLARSHIPS.—FIRST YEAR STUDENTS.

MATHEMATICS.—*Examiner, Professor Purser.*

ALGEBRA AND ARITHMETIC.

1. State and prove the rule for finding the least common multiple of two integers. Find least common multiple of 7081 and 5141.

2. Reduce to its simplest form the expression

$$(a-b)(x-a)(x-b)+(b-c)(x-b)(x-c)+(c-a)(x-c)(x-a).$$

3. Write down the expansion of $(1+x)^n$. Prove that the sum of the co-efficients of any two consecutive powers of (x) in this expansion=the co-efficient of the higher power of (x) in the expansion of $(1+x)^{n+1}$. Sum the series $1+\frac{n}{}+\frac{n.n-1}{1.2}+\frac{n.n-1.n-2}{1.2.3}$ when n is a positive integer.

4. If $x=1$ then $x^2-x=0$. If $x^2-x=0$, does it follow that $x=1$? If not, state accurately what does.

5. Solve the following equations:

$$(\alpha)\ \frac{\sqrt{a^2+x^2}-a}{\sqrt{a^2+x^2}+a}=m$$

$$(\beta)\ x^2+2hx=\sqrt{(x+h)^2+k^2}$$

$$(\gamma)\ \begin{array}{l} x^4+y^4=a^4 \\ x+y=b \end{array}$$

$$(\delta)\ \begin{array}{l} x^2+5xy+y^2=15 \\ 2x^2-xy+2y^2=8 \end{array}$$

6. Write down the quadratics where roots are

$$3 \text{ and } 5,\ 4 \text{ and } -7,\ -\frac{p}{2}+\sqrt{\frac{p^2}{4}-q} \text{ and } -\frac{p}{2}-\sqrt{\frac{p^2}{4}-q}.$$

7. Insert three geometric means between (a) and (b). Prove that the geometric mean between two positive quantities is always less than the arithmetic.

8. Prove the expressions for the sum of (n) terms of an arithmetic and of a geometric series. Find the sum of (7) terms of each of the following series:

3, 7, 11, &c. 11, 33, 99, &c.

9. If $\frac{x}{\alpha}=\frac{y}{\beta}=\frac{z}{\gamma}$ show that $\left(\frac{Ax+By+Cz}{A\alpha+B\beta+C\gamma}\right)^2=\frac{Lx^2+My^2+Nz^2}{L\alpha^2+M\beta^2+N\gamma^2}$

10. Define the logarithm of a number to the base (10). Given log. 2=·30103, log. 3=·47712, log. 7=·84510, determine the values of the logarithms of the remaining numbers from (1) to (10). Also of the logarithms of $\frac{1}{21}$ and ·003.

GEOMETRY AND TRIGONOMETRY.

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Scholarship Examinations.

1. Prove that the rectangles under the segments of two intersecting chords of a circle are equal,

(*a*) when the point is inside.
(*b*) when it is outside.

2. Construct a rectilineal figure equal to one rectilineal figure and similar to another.

3. Two triangles stand on the same base and on the same side of it. Prove that the angle between the bisectors of their vertical angles = half the sum of the angles contained by their coterminous sides.

4. Lines are drawn from the vertex of a right-angled triangle to the extremities of the square described on the base. Prove that the segments into which they divide the base form a continued proportion.

5. Define clearly the sine, cosine, and circular measure of an angle.

Write down the angles whose sine $= \frac{1}{2}$ and the angles whose tangent $= 1$.

6. Express $\tan\theta$ in terms of $\tan 2\theta$, and $\sin\theta$ in terms of $\sin 2\theta$.

7. Prove that $\sin(A-B) = \sin A \cos B - \cos A \sin B$, supposing A greater than B and each less than a right angle.

Prove also, by direct construction, that $\tan(A+B) = \dfrac{\tan A + \tan B}{1 - \tan A \tan B}$.

8. In any plane triangle ABC, prove that

$$\tan B = \frac{b.\sin C}{a - b\cos C},$$

$$\text{and that } \sin(B-C) = \frac{b^2-c^2}{a^2}\sin A.$$

9. The three perpendiculars from the vertices on the sides of a triangle meet in a point. Prove this, and show that the rectangle under the segments of any one of the perpendiculars $=\lambda^2 \cos A \cos B \cos C$, where $\lambda = \dfrac{a}{\sin A}$.

10. Prove that the distance in miles of the horizon of a spectator placed at the height of (h) feet above the sea$=\left(\sqrt{\frac{3}{2}.h.}\right)$

[The radius of the earth is taken at 4,000 miles]; a sailor from the mast of a ship 100 feet above the water, barely sees the top of a mountain 1,000 feet high; find the distance in miles.

11. Prove the formula—

$$\cos\tfrac{1}{2}A = \sqrt{\frac{s.\overline{s-a}}{bc}}$$

Hence show that if the base and the sum of the other two sides of a triangle are given, the rectangle under the perpendiculars let fall from the extremities of the base upon the external bisector of vertical angle is also given.

SECOND YEAR STUDENTS.

MATHEMATICS.—*Examiner, Professor Purser.*

ALGEBRA AND TRIGONOMETRY.

1. Eliminate (x) from the equations

$$Ax^2+2Bx+C=0 \qquad A'x^2+2B'x+C'=0\,.$$

2. Assuming the truth of the binomial theorem for positive integral indices, prove it for the cases where the index is negative or fractional.

Sum the following series where (n) is an integer:

$$1+\left(\frac{n}{1}\right)^2+\left(\frac{n.n-1}{1-2}\right)^2+\ \&c.$$

$$1-\left(\frac{n}{1}\right)^2+\left(\frac{n.n-1}{1.2}\right)^2-\ \&c.$$

3. Investigate, by the method of indeterminate co-efficients, the expansions of $\sin\theta$ and $\cos\theta$ in powers of (θ).

4. Prove that any number may be expressed in the form

$$A+B3+C3^2+D3^3+\ \ \&c.$$

where each of the co-efficients is $+1$, 0 or -1.

Express in this way the number (301).

5. Rationalize.

$$\sqrt{x}+\sqrt{y}+\sqrt{z}=0.$$

Also

$$x^{\frac{1}{3}}+y^{\frac{1}{3}}+z^{\frac{1}{3}}=0.$$

6. Prove the expansion of ϵ^x in powers of (x).

Show that this series is always convergent.

$\left(1+\frac{1}{x}\right)^x$ tends to limit (ϵ) as (x) increases indefinitely?

7. Eliminate (θ) from the equations

$$a\cos\theta+b\sin\theta+c=0$$
$$a'\cos\theta+b'\sin\theta+c'=0$$

8. Resolve $\dfrac{3x^2+2x+1}{(x-1)(x-2)(x-3)}$ into partial fractions.

9. Sum the series

$$1+\frac{n}{1}\cos\theta+\frac{n\ n-1}{1\ \ 2}\cos2\theta+\frac{n\ n-1\ n-2}{1\ \ 2\ \ 3}\cos3\theta+\ \&c.,$$

when $n=$ an integer.

$$\text{And } \frac{\sin\theta}{1}-\frac{\sin2\theta}{2}+\frac{\sin3\theta}{3}-\ \&c. \textit{ ad infinitum.}$$

10. Express in a rational form the relation subsisting between $\sin A$, $\sin B$, $\sin C$, where A, B, C, are the angles of a triangle.

11. Given the angles that the sides of a known triangle subtend at an observer in the same place, how would you compute his distance from each vortex?

12. A bag contains 6 white, 6 red, and 6 black balls. Find the chance that three balls drawn out at random shall all be of different colours.

CONIC SECTIONS.

(*N.B.—The propositions to be proved geometrically.*)

1. Assuming, as the fundamental property of the ellipse, that the sum of the focal distances is constant, prove that the distance of any point from a focus bears a constant ratio to its distance from a certain fixed line.

2. Assuming, as the fundamental property of the ellipse, that the distance of any point from a certain fixed point termed a focus, bears a constant ratio to its distance from a certain fixed line termed a directrix, prove that the locus of the middle points of chords perpendicular to the directrix is a line parallel to the directrix, and hence the existence of a second focus and directrix, and the property that the sum of the focal distances is constant.

3. Prove that the sum of the reciprocals of the segments of any chord of an ellipse passing through the focus is constant.

4. The rectangle under the perpendiculars let fall from the foci on any tangent to an ellipse = the square of the semi-axis minor.

5. The tangent to a parabola bisects the angle between the focal radius vector to the point of contact, and a line through that point parallel to the axis.

ANALYTICAL GEOMETRY AND THE DIFFERENTIAL CALCULUS.

1. Explain clearly what is meant by a differential co-efficient, and in accordance with your explanation, determine the differential co-efficients of x^5 and sin x.

2. Prove that if (z) is a function of (y) and (y) is a function of (x)

$$\left(\frac{dz}{dx}\right)=\left(\frac{dz}{dx}\right)\left(\frac{dy}{dx}\right)$$

And hence find the differential co-efficients of log $(\tan x)$, $\sin (x^m)$ $(\sin x)^m$.

3. Differentiate—

$$\sqrt{a+bx^2},\ \sin^{-1}x-\sqrt{1-x^2},\ \log\ (m+n\cos x),\frac{2a+bx}{\sqrt{a+bx+cx^2}},\ (\tan x)^x.$$

4. Prove that the general equation of the first degree in x and y represents a right line. What loci are represented by the following equations?

$$x+y=6 \quad x^2+4x+y^2=0 \quad y=0 \quad x^2-3xy+2y^2=0.$$

5. Determine the cqnation of the line perpendicular to $Ax+By+C=0$ and passing through $x'y'$. Hence find the equations of the perpendiculars on the sides of the triangle whose vertices are $x'y'$ $x''y''$ $x'''y'''$ and prove that they meet in a point.

6. Prove the expression for the area of a triangle whose vertices are three given points, namely,

$$\tfrac{1}{2}\{(x_1y_2-y_1x_2)+(x_2y_3-y_2x_3)+(x_3y_1-y_3x_1)\}.$$

7. Find the conditions that the equation $Ax^2+Bxy+Cy^2+Dx+Ey+F=0$ represents a circle. [Co-ordinates rectangular]. Write down the equation of a circle, touching the axis of (y) at the point $y=5$, and whose radius $=7$.

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Scholarship Examinations.

THIRD YEAR STUDENTS.

MATHEMATICS.—*Examiner, Professor Purser.*

THEORY OF EQUATIONS, SPHERICAL TRIGONOMETRY, &c.

1. Eliminate (θ) between the equations

$$x = \cos 3\theta - 3\cos\theta$$
$$y = \sin 3\theta - 3\sin\theta.$$

2. Approximate to three decimal places to a root of the equations

$$x^3 - 9x + 7 = 0.$$

3. Given the biquadratic

$$x^4 - 5x^3 + 2x^2 - 11x + 1 = 0.$$

Find (*a*) The sum of the squares of its roots.
(*b*) The sum of the cubes of the reciprocals of its roots.

4. State and prove Sturm's theorem for determining the number of the real roots of an equation which lie between two assigned limits.

5. The roots of

$$x^3 + px^2 + qx + r = 0 \text{ are } \alpha,\ \beta,\ \gamma.$$

Find the equation where roots are

$$\alpha^3 + p\alpha^2,\ \beta^3 + p\beta^2,\ \gamma^3 + p\gamma^2.$$

6. Find the equation where roots are the squares of the differences of the roots of

$$x^3 + 3x^2 - x + 1 = 0.$$

7. Prove that the area of a spherical triangle $= r^2(A + B + C - \pi)$. Given base and area of a spherical triangle, find locus of vertex.

8. Assuming the expression for the cosine of the angle of a spherical triangle in terms of the sides, prove that in a right-angled spherical triangle that

(*a*) The sine of one side = sine of opposite angle × sine of hypotenuse.

(*b*) The cosine of the hypotenuse = product of cotangents of adjacent angles.

9. Deduce the formula connecting two sides and two angles of a spherical triangle when all four are contiguous. Investigate what this formula becomes when the triangle is plane.

10. If (m) and (n) be the segments of the arc of a great circle drawn across a small circle on the sphere, and passing through a fixed point, prove that $\tan \frac{1}{2} m \tan \frac{1}{2} n = \text{const.}$

11. Prove the equation of the circle circumscribing the triangle $(\alpha\,\beta\,\gamma)$, namely,

$$\sin A\beta\gamma + \sin B\gamma\alpha + \sin C\alpha\beta = 0.$$

Show that $\sin 2A\alpha^2 + \sin 2B\beta^2 + \sin 2C\gamma^2 = 0$ also represents a circle, and find its chord of intersection with the other.

12. Prove that if rectangular co-ordinate axes are turned through an angle (θ) $x + y\sqrt{-1}$ becomes $(\cos\theta + \sqrt{-1}\sin\theta)(X + Y\sqrt{-1})$.

It follows at once from this that when (n) is a positive integer

$$(\cos\theta + \sqrt{-1}\sin\theta)^n = \cos n\theta + \sqrt{-1}\sin n\theta.$$

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Scholarship Examinations.

DIFFERENTIAL AND INTEGRAL CALCULUS, &c.

1. If u is a homogeneous function of (x, y, z) of the degree (n), prove that

$$x\frac{du}{dx}+y\frac{du}{dy}+z\frac{du}{dz}=nu.$$

If $u=O$ be the equation of a curve in trilinear co-ordinates, then for every point on the curve

$$\left(\frac{du}{dy}-y\frac{du}{dx}\right)^2+\left(y\frac{du}{dz}-z\frac{du}{dy}\right)^2+\left(z\frac{du}{dx}-x\frac{du}{dz}\right)^2$$
$$=(x^2+y^2+z^2)\left\{\left(\frac{du}{dx}\right)^2+\left(\frac{du}{dy}\right)+\left(\frac{du}{dz}\right)^2\right\}.$$

2. If $F(x, y)=O$ be the equation of a curve, find in terms of the differential co-efficients of F

(α) The perpendicular from the origin on the tangent at the point $x'y'$.

(β) The radius of curvature at the same point.

3. V is a function of x and y. Express $\frac{d^2V}{dx\,dy}$ in terms of (r) and (θ), when

$$x=r\cos\theta$$
$$y=r\sin\theta.$$

4. Determine the following integrals:—

$$\int\frac{dx}{(a+bx^2)^{\frac{1}{2}}}\qquad\int\frac{dx}{x^{\frac{1}{2}}+x^{\frac{1}{3}}}\qquad\int\frac{dx}{a+b\tan x}\qquad\int\frac{dx}{(a+b\cos x)^2}$$

5. Show that

$$\int dx.\frac{d}{da}.F(a,\ x)=\frac{d}{da}\int dxF(a, x)+\text{const.}$$

Hence prove that

$$\int\frac{d\theta}{(a\cos^2\theta+b\sin^2\theta)^2}=-\left(\frac{d}{da}+\frac{d}{db}\right)\int\frac{d\theta}{a\cos^2\theta+b\sin^2\theta}+\text{const.}$$

And that

$$\int\frac{d\theta}{(a\cos^2\theta+b\sin^2\theta)^{n+1}}=(-1)^n1.2......n\left(\frac{d}{da}+\frac{d}{db}\right)^n$$
$$\int\frac{d\theta}{a\cos^2\theta+b\sin^2\theta}+\text{const.}$$

6. State and prove clearly in what sense

$$\int_a^b f(x).\,dx \text{ is a sum.}$$

Find by integration the area of the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$.

7. Explain fully the method of finding the envelope of a curve, whose equation contains an arbitrary parameter, and of a curve whose equation contains two arbitrary parameters, between which there exists a given relation.

As an example of the second case, find the envelope of normals to the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$.

8. Reduce the condition that two curves $y=f(x)y=F(x)$ intersect at right angles to the elimination of (x) between two equations.

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Find the condition that the parabolas

$$y=Ax^2+2Bx+C$$
$$y=ax^2+2bx+c$$

intersect at right angles.

9. If r be the radius vector, p the perpendicular or tangent, show that radius of curvature $=\dfrac{rdr}{dp}$.

Hence find the radius of curvature of a parabola.

Find the curve such that the locus of the foot of the perpendicular on tangent is a circle.

10. Solve the following differential equations :—

$$\frac{d^2y}{dx^2}-7\frac{dy}{dx}+12y=0$$

$$\frac{dy}{dx}+y\sin x=\cos x$$

$$(x^2+y^2)^2x\frac{dy}{dx}=(x^2-y^2)^2y.$$

11. A certain sum is placed out to interest; what will be the result at the end of a year—(1) if the interest at a given rate per annum is calculated monthly and added to the principal; (2) if the interest is calculated and added at indefinitely short intervals?

12. If two lines through the origin make angles α, β, γ, and α' β' γ' with three rectangular axes, investigate the expressions for the cosines of the angles which their plane makes with the co-ordinate planes.

Find the condition that three lines $\alpha\beta\gamma$ $\alpha'\beta'\gamma'$ $\alpha''\beta''\gamma''$ lie in a plane.

Natural Philosophy.—*Examiner, Dr. Stevelly.*

1. Show that if the moments of two forces, whose directions meet, with respect to a certain point, be equal and have opposite directions, that point must lie on the direction of the resultant of these two forces.

2. Four forces act together upon the rigid parallelogram, *ABCD*. Two of these forces are represented in magnitude and direction by *AB* and *AD*, the other two by *BC* and *DC*. Find the line which represents the magnitude and direction of the equivalent of these. State what single force, and where applied, would be required to place the parallelogram in equilibrio.

3. Three forces of respectively 110 lbs., 1 cwt., and 116 lbs., act at the same point of a body, and in the same plane, in the direction of three lines diverging from that point at angles of 120° to one another. Find the magnitude of the resultant of these three forces; and the angle which its direction makes with the direction of the force of 1 cwt.

4. Suppose a spheric portion, whose radius is r, to be cut out eccentrically from a larger homogeneous sphere whose radius is R, and let the distance of the centre of the sphere cut out from that of the larger one be d; find the distance of the centre of gravity of the remaining shell from the centre of the large sphere, and state their relative position.

5. The accelerating force of gravity at London is suppose 32·1908. Find the specific gravity of a sample of matter, in one cubic foot of which a statical force of 4·16 lbs. is found, by acting for one second, to produce a velocity of 13·16 feet per second.

6. Investigate the relation between the space described from rest (S)

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under any constant accelerating force, the last acquired velocity (v) and the time from the instant at which the motion began (t). Give the full investigation.

7. Find the accelerating force which, acting uniformly on a body through 100 yards, would cause it to acquire a velocity of 35 feet per second. Write down the general formula by which you work, and show how it is deduced.

8. If we carry a given body to several places relatively to the earth's equator, show that its weight will not be the same at all. State why the balance will not show this to be the fact; and explain what test would prove it; and by what experiment its weight at any one station may be ascertained.

9. When a plane surface whose area is A, moves obliquely through an inert fluid whose specific gravity is ρ, with the velocity V, suppose the direction of the motion makes the angle θ with the plane surface, give the expression for the part of the resistance of the fluid which impedes the onward motion of the plane in the direction of that motion. Find also the part of the action of the fluid which impels the plane sideways perpendicularly to the direction of the motion, and state the direction of the total action of the fluid on the plane, and give the expression for it.

10. Suppose m to 1 to express the ratio of the specific gravity of mercury to that of sea water, and that a barometer suspended in a diving bell, before its mouth touched the surface of the water stood at the height of h inches, and after it had descended to a certain depth the barometer is found to stand at h'; give the expression for the number of feet the mouth of the bell has descended below the surface of the sea. Take no account of any change of temperature which may occur, and suppose the bell to be kept full of air, by pumps worked above.

11. Give a general description of the coats and humours of the human eye; explain its action on the pencils of light coming from the ordinary objects of vision to enable us to see them distinctly, and explain the distinction between an optically good eye, and the two oppositely defective eyes. Explain each distinctly.

12. Explain how, by meridian transits of the moon, or one of the planets and a neighbouring fixed star, made at two distant stations which lie as nearly as possible in the same terrestrial meridian, astronomers are able to deduce the horizontal parallax of that planet or moon; and from thence its distance from the centre of the earth, whose shape and dimensions are supposed to be known.

ENGINEERING SCHOLARSHIPS.—SECOND YEAR STUDENTS.

GEOMETRICAL DRAWING.—*Examiner, Professor James Thomson.*

1. In Descriptive Geometry: through a given point to draw a plane parallel to a given plane.

2. If two straight lines be given by their projections, how can you ascertain whether the lines intersect one another or not?

3. Given the projections of a straight line, it is required to find the angles which it makes with the planes of projection.

4. If in a landscape picture there be two houses, each with walls understood to be built at right angles with one another, and each showing horizontal lines in two faces; but the walls of the one not being parallel to those of the other, how may the proper point of view, or eye-point, for the picture be found?

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5. Make an isometrical projection of the tank shown in the accompanying diagram sheet;* the dimensions in the diagram being taken as those of a model to be isometrically projected.

6. Explain the method of drawing in perspective by the use of vanishing points and measuring points; and show at the same time to what kind of objects this method is applicable.

7. Make neat hand-sketches, showing the end of a connecting rod (which is placed before you) formed with strap, gib, and cottar. The parts are to be shown both as put together, and as separated.

8. Two planes being given by their traces, it is required to find the angle between them.

9. Through a given point to draw a plane and a line both perpendicular to a given line.

10. Why is it that vertical original lines are usually represented by vertical lines in a perspective picture; and under what conditions ought they to be represented by straight lines converging to a vanishing point?

11. If a point in space of which the perspective representation on a vertical picture plane is to be found, be given by its three rectangular co-ordinates X, Y, and Z, the eye-point being the origin of co-ordinates, the axis of X being horizontal, and parallel to the picture; that of Y being vertical, and parallel to the picture, and that of Z horizontal, and perpendicular to the picture; show how the position of the perspective representation of the given point may be determined by co-ordinates in the picture, with the centre of the picture as origin.

12. In the accompanying diagram sheet,* given *a b c d* as the perspective representation on a vertical picture plane of a horizontal square; it is required to find the horizon line, the centre of the picture, and the eye-point.

13. Let two circular cylinders, of equal diameters, have their axes intersecting one another at right angles, and the axis of the one vertical. Then for the two cases, 1st, in which the axis of the other is parallel to the vertical plane of projection; and, 2nd, in which it is not; show how to draw the vertical projection of the intersection of the two cylindric surfaces.

CHEMISTRY.—*Examiner, Dr. Andrews.*

1. What volume would 100 vol. of dry air, measured under a pressure of 25 in., and at the temperature of 10° C., occupy under a pressure of 30 in. and at 0° C.?

2. Give an account of the method of determining the highest and lowest temperatures during the day and night.

3. Why is the temperature of low-pressure steam issuing at the end of a long tube connected with a boiler nearly the same as its temperature in the boiler itself?

4. Explain the cause of the low temperature of high-pressure steam, when it is allowed to escape into the air.

5. How is tension or force of steam determined for temperatures above 212°?

6. Equal weights of two liquids *a* and *b*, at the respective temperatures of 60° and 90° being mixed together, give, after all corrections are made, a temperature of 70°; what is the relation between their specific heats?

7. Why is the temperature of a thermometer indicated for a clear night with a naked bulb thermometer lower than that indicated by a thermometer covered with silver leaf?

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* Furnished to Students at the Examination, but not printed in Calendar.

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Scholarship Examinations.

8. How many cubic inches of hydrogen gas are obtained by the solution of 50 grains of zinc in sulphuric acid, 100 cubic inches of air weighing 31·0 grains ? (at. wt. zinc = 32·5).

9. Describe the reaction when oxygen gas is prepared by the action of sulphuric acid on the bichromate of potash.

10. How may oxygen gas be separated from nitrogen by direct absorption ?

11. When 101 parts of nitrate of potash are heated with 98 parts of oil of vitriol, what reaction takes place ?

12. Mention some of the solvents of the deutoxide of nitrogen.

13. What is the action of chlorine gas upon carbonic oxide ?

14. Describe the structure of flame, and explain the action of the different parts of the flame in blow-pipe experiments.

15. What are the characteristic properties of the metallic elements ?

16. What is the composition of gunpowder and the principal products formed when it explodes.

17. Give an account of the most important salts of soda.

18. How is steel prepared from bar iron, and also directly from cast iron ; describe, also, the method of tempering it.

19. What are the tests of the protoxide and of the sesquioxide of iron ?

20. Give an account of the principal alloys of copper.

21. How is the amount of silver in a silver coin determined in the moist way ?

22. Describe the tangent galvanometer, and the method of using it.

23. How is the presence of free electricity in the atmosphere discovered by means of the gold-leaf electroscope?

24. Explain the expressions $f = \dfrac{E}{R+r}$ and $f' = \dfrac{n\,E}{n\,R+r}$

Experimental Physics.—*Examiner, Dr. Stevelly.*

1. State some of the experimental proofs that a body has inertness as distinguished from its weight. Explain the relation between weight and inertia, and the leading circumstances in which they differ. State some of the facts, as to the mode of action of each, which distinguish them.

2. State some of the facts which lead to the conclusion that the atoms or ultimate particles of which bodies are composed are absolutely unchangeable in all their properties, and indestructible during any of the changes of form they undergo in the ordinary operations of nature or art.

3. Out of one angle of a rectangular plate of homogeneous lead, of uniform thickness, whose length is 12 inches and breadth 9 inches, I cut a similar and similarly posited rectangular portion, whose length is 4 inches and breadth 3 inches. Find the position of the centre of gravity of the remaining gnomon.

4. Enumerate the mechanic powers or most simple machines. Describe the lever. State the law which determines the relation of two forces which equilibrate on the lever ; and prove its truth.

5. Describe the wedge. State the relations, direction and magnitude of three pressive or constant forces which equilibrate on a wedge, and prove your statement.

6. Two railway trains are passing each other—one is moving at the rate of 35 British miles an hour, the other in the opposite direction at the rate of 25 British miles. State the velocity of each train, in feet, per second ; and state the relative velocity with which two passengers, one in each, who wanted to converse, pass each other.

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7. From the experiments of General Sabine it was inferred that the accelerating force of gravity at the sea level at London was 32·1908 feet. Calculate the number of feet a heavy body would freely fall through, from rest at London, in three seconds of time; and state the velocity with which it is moving at the end of that time.

8. A fragment of a rock which is found to weigh 527¼ grains, when suspended by a fibre of silk to a balance and immersed in distilled water, is found to counterpoise only 284·83 grains. Calculate its specific gravity and explain the hydrostatic principle of your calculation.

9. Explain how the specific gravity of a body lighter bulk for bulk than distilled water is found, as, for instance, a piece of deal timber. Explain in detail both the process and the hydrostatic principle.

10. Suppose the specific gravity of mercury to that of sea water to be 13·25 to 1, and that a person going down in a diving bell observed a barometer in the bell to stand at 30 inches, just as the mouth of the bell was about to touch the surface of the sea; after he has descended to some depth, he again observes the barometer to stand at 36 inches, the attendants above pumping enough of air to keep the bell just full. How many feet has the mouth of the bell descended below the surface of the sea? Take no account in the calculation of any change of temperature, but state generally what would take place in that respect.

11. Exemplify the three states in which any kind of matter may exist, by the three distinct states in which water is found to exist, and describe the leading relations to temperature, sensible, latent, and specific heat, of water, in each of these states.

12. Explain how the ordinary objects of vision are made up of visible points. Explain what kind of pencils of light emanate from each of these visible points; and show how an image of a visible object placed before a plain reflector (a common looking-glass suppose) is formed.

THIRD YEAR STUDENTS.

SURVEYING, LEVELLING, ENGINEERING GEODESY, &c.—*Examiner, Professor James Thomson.*

1. When a survey is to be made so as to admit of readily computing areas from the field-book directly, without plotting a map, how ought the offsets to be managed in passing from those measured in reference to one chain-line, to those measured in reference to the next, where the two chain-lines meet at a station? Your answer is to be accompanied by sufficient explanations to render the reasons for it clear.

2. If a triangle is to be determined by measurement of a side and the two adjacent angles, how much would be the errors in the lengths of the required sides, which would arise from an error of one minute in one of the measured angles, in the case in which that required side, whose angle with the given side is wrong by one minute, is found from the data to be about 2,330 links, and in which the angle opposite to the given side is found to be about 30°?

3. How may areas given in Irish acres, roods, and perches, be reduced to statute (imperial) acres, roods, and perches?

4. Explain what you consider the best and most expeditious method for ordinary use for testing and adjusting Gravatt's level: and, in doing so, give explanations as to what uses may be made of the diaphragm adjustment screws, and the bubble-tube adjustment screws.

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5. Give a brief outline of the method for setting out railway curves "*by angles at the circumference*" (Professor Rankine's method); firstly, in the case in which the point of intersection of the given straight tangents to the ends of the curve is accessible; and, secondly, in which it is inaccessible.

6. Explain the method of setting out railway curves "*by offsets*."

7. If on a railway, an engine or carriage passes at a given velocity, from a straight line, tangentially into a circular curve of given radius, a certain amount of centrifugal force begins instantly; what would be the radius of a circle in which the centrifugal force would be half as much; and again, what would be the radii of two successive circular arcs to be interposed between the straight line and the principal curve for the railway bend, so that the centrifugal force would be firstly one-third, and secondly two-thirds of that in the principal curve?

8. Explain how to set out the "*half-breadths*" for a railway cutting in sidelong ground.

9. Distinguish between Common Lime Mortar, Hydraulic Mortar, Roman Cement, Portland Cement, and Plaster of Paris.

10. What are the chief distinctions between *coniferous* and *non-coniferous* trees, in respect to the timber supplied by them?

11. Mention some of the methods which have come much into notice for preserving timber from decay. Give what information you can as to their advantages, or their success or failure, for preserving railway sleepers, and the timber of piers exposed to the sea.

MEDICAL SCHOLARSHIPS.—SECOND YEAR STUDENTS.

ANATOMY.—*Examiner, Dr. Redfern.*

1. Name and describe such parts of the following bones, as will enable you to refer them to their proper positions on the right or left side of the body, and state how this is to be done:—The clavicle, patella, ulna, unciform, third metacarpal, fibula, astragalus, cuboid, internal cuneiform, and fifth metatarsal.

2. Describe the method of removal of the brain for its subsequent anatomical examination, naming each of the parts met with, and particularizing the position in which each requires to be cut for this purpose.

3. Describe the ligaments which attach the axis to the occipital bone.

4. State the extent, course, and relations of the ureter, vas deferens, ductus communis choledochus, and the duct of the submaxillary gland.

CHEMISTRY.—*Examiner, Dr. Andrews.*

[*Questions* 1 *to* 15 *same as those printed in Engineering Paper*, p. 80.]

16. Give an account of the more important salts of magnesia.

17. What is the composition of alum? Mention also the bases which can replace the alumina and potash respectively.

18. How is metallic arsenic prepared from the oxide, and what are its properties?

19. Describe the method of analysing an organic compound of carbon, hydrogen, and oxygen.

20. State the composition of starch, and of the different kinds of sugar, and mention briefly their characteristic properties.

21. Give an account of the process of etherification.

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Scholarship Examinations.

THIRD YEAR STUDENTS.

PHYSIOLOGY.—*Examiner, Dr. Redfern.*

1. Describe the epigastric and obturator arteries, and their varieties of origin, course, and relations; stating the relative importance of these varieties in practice.

2. State what muscles are attached to the fibula, and to the radius, respectively, and describe the precise extent of each attachment.

3. Describe the microscopical structure and arrangement of the dentine of the human teeth.

4. What are the uses of the elasticity and contractility of the coats of the blood vessels?

5. Give all the proofs you know that the nervous system influences the contractility of the blood vessels.

PRACTICAL CHEMISTRY.—*Examiner, Dr. Andrews.*

1. State the average density of ordinary urine, and of diabetic urine, in degrees of Twaddell's Hydrometer. Explain the method of reducing the degrees of Twaddell.

2. What is the action of reagents upon magnesia? Describe also the method of determining its amount in mineral analysis.

3. How are the salts of baryta distinguished from those of strontia?

4. What are the characteristic reactions of the salts of the oxide of copper?

5. State the composition of the ferrocyanide and of the ferridcyanide of potassium, the methods of preparing them, and their applications in analysis.

6. What compound is formed when ammonia is added to a solution of corrosive sublimate? State also its composition.

7. What is the action of reagents upon the arsenites of silver and copper?

8. How is arsenic acid prepared, and what are its properties?

9. Mention the organic bodies usually present in urine, and the method of discovering them.

10. How would you distinguish a deposit of urate of ammonia from one of the ammoniaco-magnesian phosphate?

11. Describe the mode of preparing either coneine or nicotine.

12. Give an account of the properties of albumen and of fibrin.

FOURTH YEAR STUDENTS.

ANATOMY AND PHYSIOLOGY.—*Examiner, Dr. Redfern.*

1. Give the general and microscopical characters of the lenticular glands of the stomach, the solitary and aggregate glands of the small intestine, and the follicular glands of the great intestine; state also their position, their relations to the structures of the wall of the alimentary canal, and the modifications of these structures in the neighbourhood of the glands above named.

2. State the steps of a dissection to expose the anterior surface of the scalenus anticus muscle, mentioning each part in the order in which it is

met with, with its extent in the dissection, and the method of disposing of it.

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A systematic description of the parts is not required, but the position and the mode of recognition of each are to be fully stated.

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1. Give an account of ciliary motion. State in what parts of the human body it occurs, with the extent and uses of it in each part, as far as is known.
2. How do we see objects singly with two eyes? How do we refer objects to their proper position in space, judge of the size and distance of objects, and distinguish solid bodies from drawings by the visual sense?
3. What are the functions of the parts of the eighth pair of cranial nerves, and of the branches of the vagus? State how you would propose to test each of these functions by experiment.
4. What are the constituents of the urinary secretion? Name the variations in these substances which can be easily and certainly recognised in diseased conditions, and state how this is to be done.

MATERIA MEDICA.—*Examiner, Dr. Reid.*

1. Name our chief sedative medicines.
2. Write prescriptions for the internal use of each in a fluid form.
3. Name our antiperiodic medicines.
4. Write prescriptions for the internal use of each.
5. On what tissue of the body do astringent medicines act chiefly?
6. In what ways do they act?
7. How are they classified?
8. Name the chief astringent principle furnished by vegetables, and the substance containing it in largest proportion.
9. Write prescriptions for its use in the form of pill and powder.
10. With what substance has cusparia or angustura bark been adulterated, and how would you distinguish the genuine from the spurious?
11. What ingredients enter into the composition of the compound colocynth pill of Dublin, and how does it differ from the Edinburgh preparation?
12. Name the medicines on the table, and classify them therapeutically.

SURGICAL ANATOMY.—*Examiner, Dr. Gordon.*

1. Describe the formation of the elbow joint, the alterations and lesions which take place in its various dislocations, mentioning particularly the circumstances which respectively shall enable us to form a correct diagnosis.
2. Describe the displacement that occurs in fractures of the bones of the leg, and also mention the muscles which offer most resistance to their adjustment, and which chiefly tend to reproduce the deformity, and also the position most suitable in their treatment.
3. Describe the lateral operation of lithotomy, and the parts necessarily divided in its performance, mentioning those rare distribution of arteries which have been known to give rise to serious and fatal hæmorrhage.
4. A small sword is thrust horizontally through the chest between the eighth and ninth ribs, on the same vertical line as the nipple. What parts has it passed through?

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Scholarship Examinations.

MEDICAL JURISPRUDENCE.—*Examiner, Dr. Hodges.*

1. Describe the post mortem appearances observed in poisoning with tartar emetic, and the method of applying electrolysis for the separation of antimony from organic liquids.

2. What substances are known to produce salivation?

3. What are the chemical means required in the treatment of poisoning by the following substances—Tartar Emetic, Corrosive Sublimate, Strychnine, Copper?

4. What post-mortem alterations may occasionally be observed in the stomach, when death has been produced by ordinary causes and not by poison?

MODERN LANGUAGES.—*Examiner, Dr. Frädersdorff.*

Translate into English :—

Rome représente le principe du gouvernement ; si elle combat, c'est pour unir, pour organiser dans un corps puissant toutes les nations qu'elle absorbe. A la suite de ses légions marchent ses légistes. Sa vraie littérature c'est son droit immortel, c'est-à-dire l'unité dans le commandement ; c'est aussi l'éloquence du Forum, destinée à le faire prévaloir. Sa vie politique, c'est la fondation du pouvoir ; son histoire, c'est l'épopée de la guerre et de la conquête.

Un sénat puissant, âme de Rome et du monde, attire et assimile tout élement étranger. La plèbe, c'est-à-dire les vaincus, les nouveaux Romains, lutte en vain au nom du principe humain de la liberté ; le jour où la liberté semble triompher, où, le sénat, ce pouvoir multiple, est convaincu d'impuissance à représenter la force centrale, ce jour-là se constitue la vraie forme de Rome, l'unité la plus formidable du commandement, le despotisme militaire, l'empire ; forme si vitale, que par elle seule Rome organise définitivement le monde déjà conquis, et que le nom de cette puissance se prolonge à travers les temps modernes comme un objet d'admiration et de terreur, comme l'effroi de la liberté et la suprême ambition de quiconque aspire à fonder un vast et énergique pouvoir.

Il est remarquable que c'est l'orgueil du commandement qui donne à la littérature romaine une originalité frappante. Dans sa poésie elle croit imiter la Grèce ; elle en copie toutes les formes ; mais une pensée inconnue à la Grèce domine et agrandit cette imitation. Partout dans les poëtes latins au-dessus de ces riantes images de la mythologie s'élève l'image plus haute de l'immortelle cité : par delà les sommets de l'Olympe on découvre toujours les murailles de la grande Rome, *altæ mœnia Romæ.*

O rage ! ô désespoir ! ô vieillesse ennemie !
N'ai-je donc tant vécu que pour cette infamie ?
Et ne suis-je blanchi dans les travaux guerriers
Que pour voir en un jour flétrir tant de lauriers ?
Mon bras qu'avec respect toute l'Espagne admire,
Mon bras qui tant de fois a sauvé cet empire,
Tant de fois affermi le trône de son roi,
Trahit donc ma querelle, et ne fait rien pour moi ?
O cruel souvenir de ma glorie passée !
Œuvre de tant de jours en un jour effacée !
Nouvelle dignité, fatale à mon bonheur !
Précipice élevé d'où tombe mon honneur !
Faut-il de votre éclat voir triompher le comte,

Et mourir sans vengeance, ou vivre dans la honte ?
Comte, sois de mon prince à présent gouverneur ;
Ce haut rang n'admet point un homme sans honneur ;
Et ton jaloux orgueil, par cet affront insigne,
Malgré le choix du roi, m'en a su rendre indigne,
Et toi, de mes exploits glorieux instrument,
Mais d'un corps tout de glace inutile ornement,
Fer, jadis tant à craindre, et qui, dans cette offense,
M'as servi de parade, et non pas de défense,
Va, quitte désormais le dernier des humains,
Passe, pour me venger, en de meilleures mains.

Translate into French or German.

The period of two hundred and forty years, from the accession of Hugh Capet to that of St. Louis, is described by Sismondi as "a long interregnum, during which the authority of king was extinct, although the name continued to subsist." A history of France, during this period, is a history, not of its monarch, but of its nobles, and as yet these details are neither heroic nor important enough to be interesting. A duke had sprung up in Aquitaine, a king in Provence. The establishment of the Norman princes has already been narrated. Betwixt them and Aquitaine, Anjou obeyed a warlike court. To the North the first Baldwin possessed the County of Flanders, betwixt the Somme and the Meuse. The Duchy of Burgundy was formed in the East, whilst that of Lorraine was altogether independent of France, and held by tongue as well as rule (*régime*) to the Empire of Germany.

Translate into English :—

Der Beſuv.

Neapel, Dienſtag, den 20 März 1787.

Die Kunde einer ſo eben ausbrechenden Lava, die für Neapel unſichtbar nach Ottajano hinunter fließt, reizte mich, zum drittenmale den Beſuv zu beſuchen. Kaum war ich am Fuße deſſelben aus meinem zweirädrigen, einpferdigen Fuhrwerk geſprungen, ſo zeigten ſich ſchon jene beiden Führer, die uns früher hinauf begleitet hatten. Ich wollte keinen miſſen und nahm den einen aus Gewohnheit und Dankbarkeit, den andern aus Vertrauen, beide der mehreren Bequemlichkeit wegen mit mir.

Auf die Höhe gelangt, blieb der eine bei den Mänteln und Victualien, der jüngere folgte mir, und wir gingen muthig auf einen ungeheuern Dampf los, der unterhalb des Kegelſchlundes aus dem Berge brach; ſodann ſchritten wir an deſſen Seite her gelind hinabwärts, bis wir endlich unter klarem Himmel aus dem wilden Dampfgewölke die Lava hervor quellen ſahen.

Man habe auch tauſendmal von einem Gegenſtand gehört, das Eigenthümliche deſſelben ſpricht nur zu uns aus dem unmittelbaren Anſchauen. Die Lava war ſchmal, vielleicht nicht breiter als zehn Fuß, allein die Art, wie ſie eine ſanfte, ziemlich ebene Fläche hinabfloß, war auffallend genug; denn indem ſie während des Fortfließens an den Seiten und an der Oberfläche verkühlt, ſo bildet ſich ein Kanal, der ſich immer erhöht, weil das geſchmolzene Material unterhalb des Feuerſtroms erſtarrt, und welcher die auf der Oberfläche ſchwimmenden Schlacken rechts und links gleichförmig hinunter wirft, wodurch ſich dann nach und nach ein Damm erhöht auf welchem der Gluthſtrom ruhig fortfließt wie ein Mühlbach Wir gingen neben dem anſehnlich erhöhten Damme her, die Schlacken rollten regelmäßig an den Seiten herunter bis zu unſern Füen. Durch einige Lücken des Kanals konnten wir den Gluthſtrom von unten ſehen und, wie er weiter hinabfloß, ihn von oben beobachten.

Appendix, No. 8.

Scholarship Examinations.

Ach, was ſoll der Menſch verlangen?
Iſt es beſſer ruhig bleiben?
Klammernd feſt ſich anzuhangen?
Iſt es beſſer, ſich zu treiben?

Soll er ſich ein Häuslein bauen?
Soll er unter Zelten leben?
Soll er auf die Felſen trauen?
Selbſt die feſten Felſen beben.

Eines ſchickt ſich nicht für Alle.
Sehe Jeder, wie er's treibe!
Sehe Jeder, wo er bleibe,
Und wer ſteht, daß er nicht falle!

Geh! gehorche meinen Winken,
Nutze deine jungen Tage,
Lerne zeitig klüger ſein?
Auf des Glückes großer Wage
Steht die Zunge ſelten ein
Du mußt ſteigen oder ſinken,
Du mußt herrſchen und gewinnen,
Oder dienen und verlieren,
Leiden oder triumphiren,
Amboß oder Hammer ſein.

Göthe.

CHEMISTRY.—*Examiner, Dr. Wyville Thomson.*

1. Describe the preparation of acetic anhydride, and contrast its properties with those of acetic acid.
2. Describe the different methods employed to obtain the fatty acids free from glycerine, for the manufacture of candles.
3. How is magnesium prepared, and what are its properties?
4. Calculate the theoretical densities of alcohol and ether.
5. Give an account of the theory of etherification.
6. State the composition of the chlorine substitution compounds from Dutch liquid and hydrochloric ether, and mention by what property the isomeric compounds derived from the former are distinguished from those derived from the latter.
7. What are the general laws of electrolysis?
8. Describe Daniell's battery, and explain the principle upon which the constancy of its action depends.
9. Give an account of the spectra produced by potassium, sodium, cæsium, rubidium, thallium, barium, and strontium.

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